THE IRON AGE

A Review of the Hardware, Iron, Machinery and Metal Trades.

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Reading Matter Contents.....page 900
Alphabetical Index to Advertisers " 276
Classified List of Advertisers " 268
Advertising and Subscription Rates" 922

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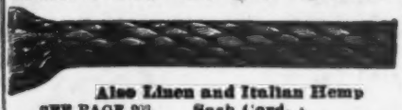

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SEE PAGE 203. Sash Cord.
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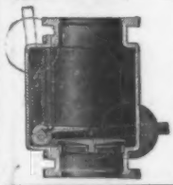

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THE IRON AGE

New York, Thursday, October 4, 1906.

The Scullin-Gallagher Iron and Steel Company.

Important Additions to the Steel Casting Plant.

In no branch of the iron and steel industry of this country has a greater proportionate growth been recorded in recent years than in the manufacture of steel castings, due to the steadily increasing demand for them as a substitute for iron castings and large or intricate forgings. In the construction of freight cars and locomotives the use of steel cast parts shows a remarkable growth, and of late rolling mill housings and engine bed plates are being cast in steel instead of iron.

In the West the industry has shown marked growth

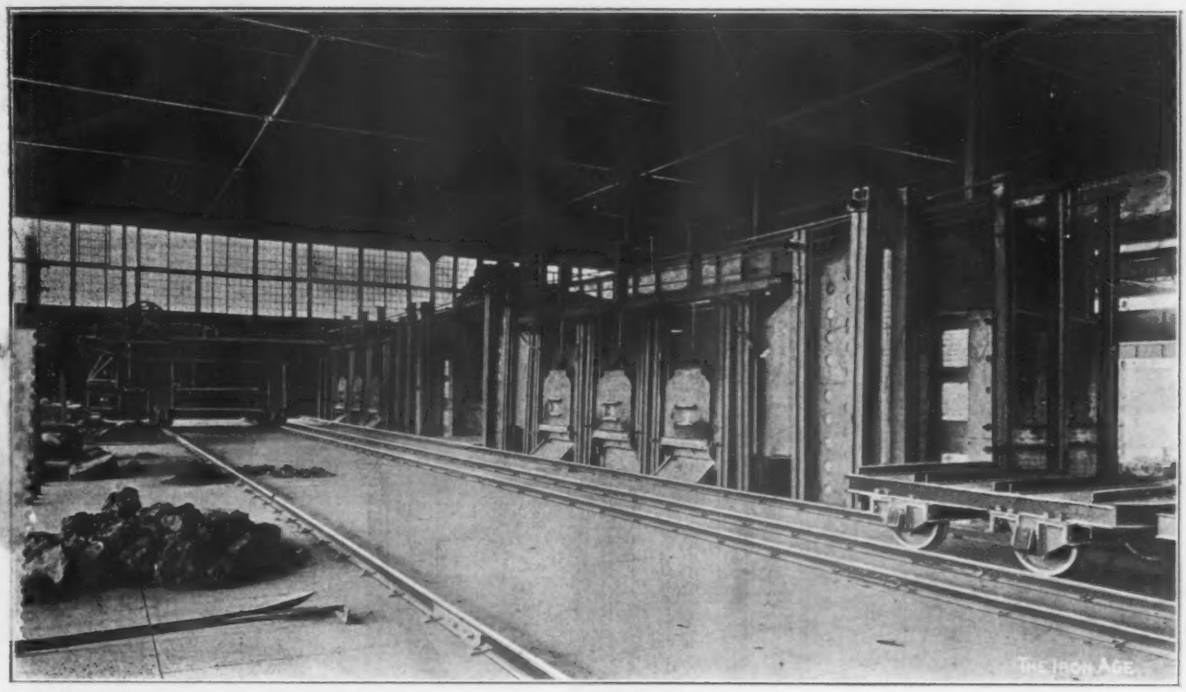


Fig 1.—View of the Charging Floor in the New Foundry No. 2.

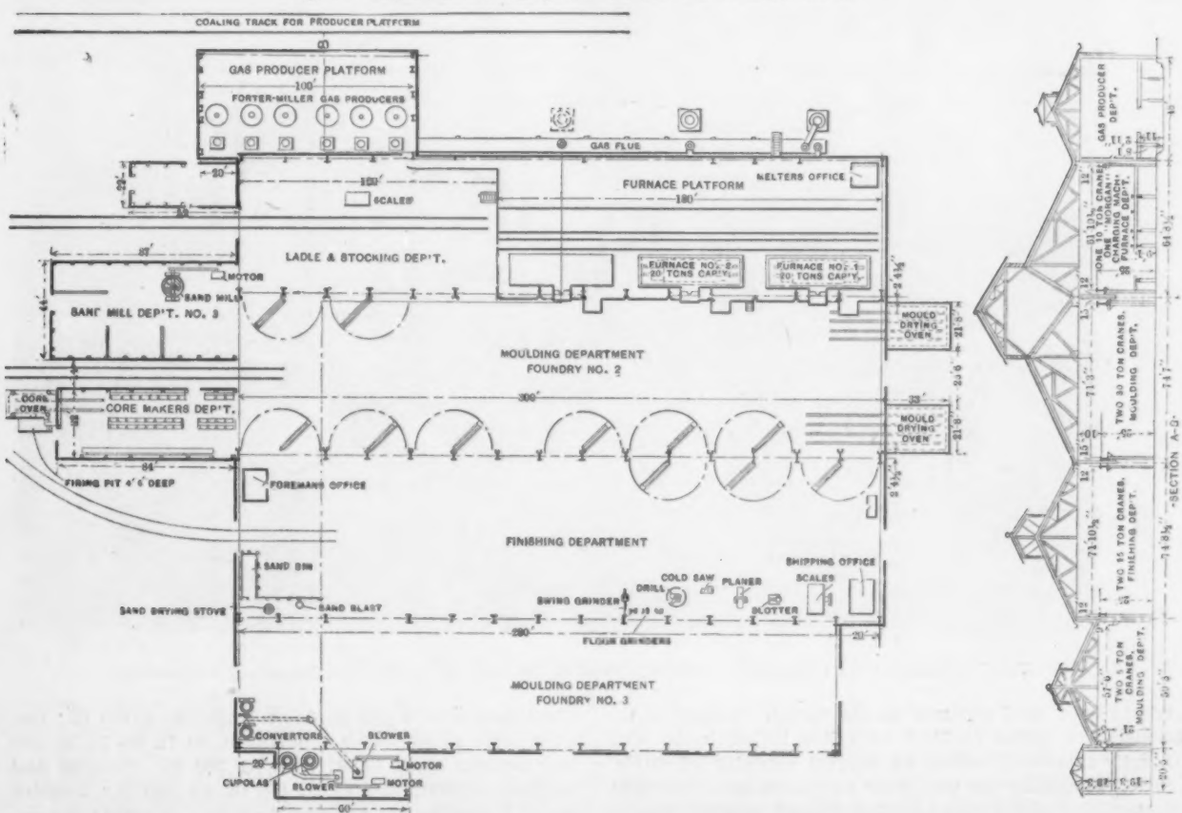


Fig. 2.—Plan and Cross Section, Showing Additions to the Steel Casting Plant of the Scullin-Gallagher Iron & Steel Company, St. Louis, Mo.

in the St. Louis territory, and with the completion of extensions to the plant of the Scullin-Gallagher Iron & Steel Company, which is located on a tract of 87 acres within the confines of the city of St. Louis, this district will have in its center the largest foundry for the manufacture of steel castings in the world. Initial operations were begun in 1900 with five 20-ton basic open hearth furnaces, having an annual capacity of 40,000 tons, but within the past year two more furnaces have been added and a third projected, and another department is now being built, which will contain two Tropenas converters and two cupolas for melting the iron used in this pneumatic process. The annual output will thus be increased to about 60,000 tons, or 200 tons daily.

The completed additions and undertaken extensions are shown in the general plan and cross section, Fig. 2. They consist of a gas producer house, 48 x 100 ft.; furnace, ladle and stocking department, 64 ft. 8½ in. by 300 ft.; molding floor, 74 ft. 7 in. by 300 ft.; cleaning and finishing department, 74 ft. 8½ in. by 300 ft.: foundry No. 3, including the molding floor and Tropenas department, 59 ft. 8 in. by 280 ft.; sand mill building, 44 x 87

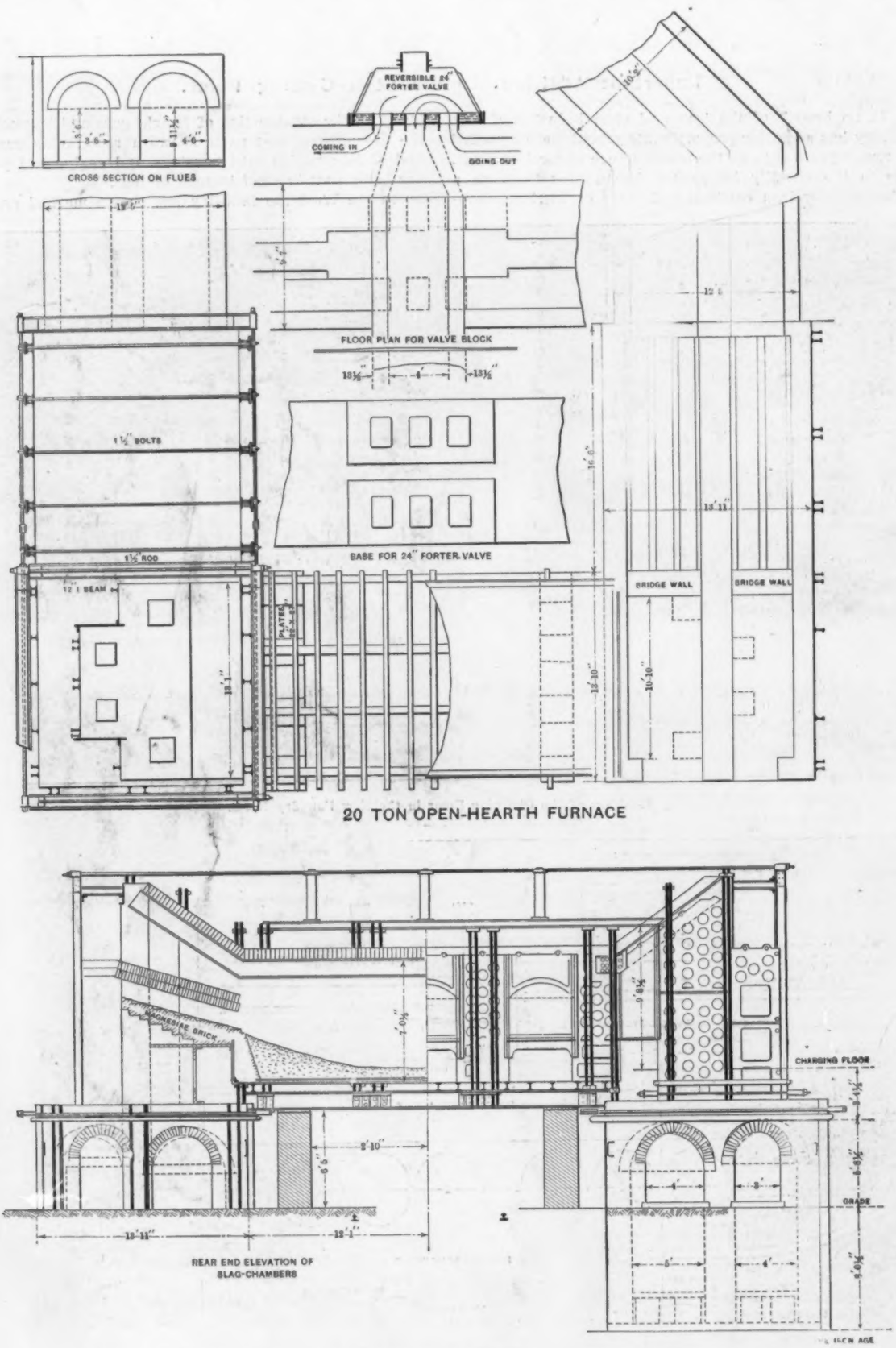


Fig. 3.—Details in the Open Hearth Building, Showing the Two 20-Ton Siemens Regenerative Furnaces.

ft., and coreroom, 32 x 84 ft. The two departments included in the above are designated as foundries Nos. 2 and 3, respectively, and the buildings, which are of steel construction throughout, are divided into five bays. Foundry No. 2 nas been designed on a plan similar to No. 1. The furnaces parallel the molding floor, with their pouring sides opening into this department, and the cleaning length, 24 ft., and hight, 7 ft. 6 in. The charging floor, Fig. 1, which is 9 ft. 1 in. above grade, is 180 ft. long and is served by an electric charging machine, built by the Morgan Engineering Company, Alliance, Ohio. The remainder of the building is used as a stockhouse, in which the charging boxes are filled, the material being unloaded directly from the cars in which it is received on a spur

Fig. 4.—The Pouring Side of the Open Hearth Furnaces.

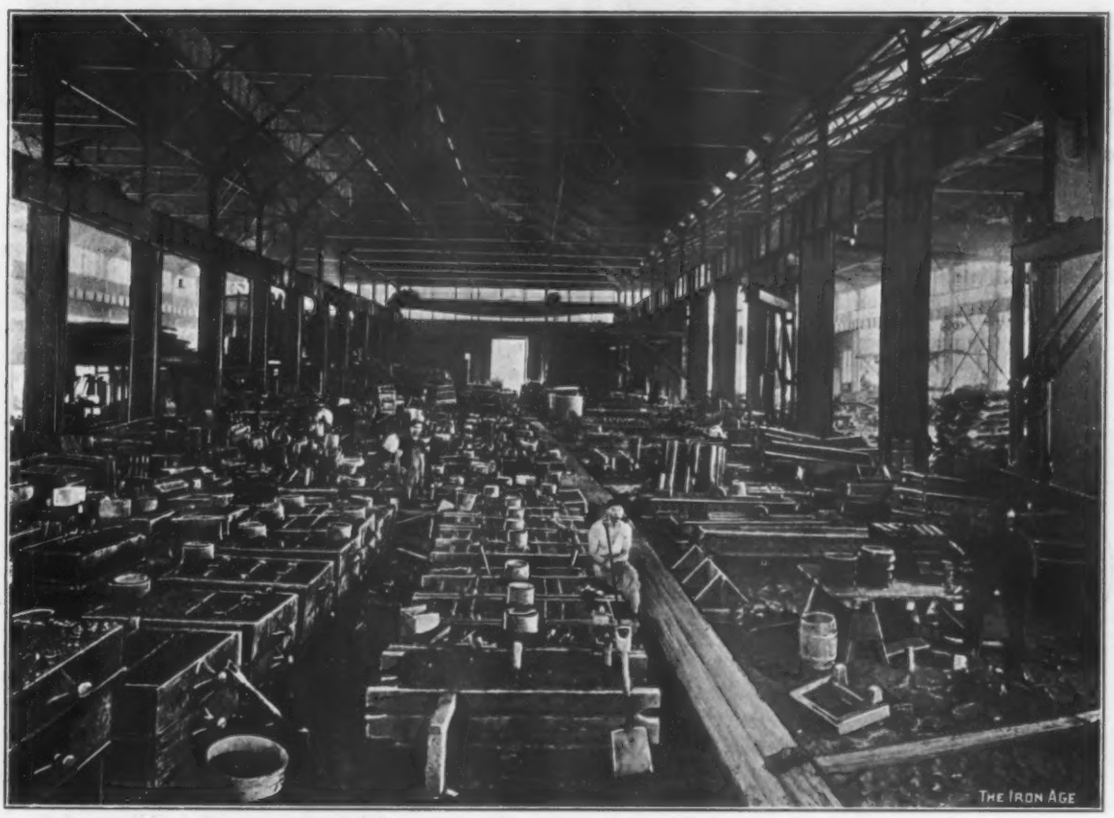


Fig. 5.—The Molding Floor of Foundry No. 2.

and finishing floors again parallel the molding floor. Provision is thus made for the rapid handling of castings and their transfer from one department to another.

The open hearth building contains two 20-ton open hearth furnaces of the Siemens regenerative type, shown in Fig. 3, designed and built by the company, having the following inside dimensions: Width, 10 ft. 9 in.; track running into this bay. A scale is conveniently located for the weighing of the charges, and as the floor of this department is at datum the filled boxes are lifted on the buggies from the stockhouse floor by a 10-ton traveling crane and lifted to the charging platform, where they are set on the track directly in front of the furnaces and are moved to suit the convenience of the

charging machine. By this method the cost of handling the material is reduced to a minimum.

The producer house, which adjoins one end of the open hearth building, contains six Forter water seal gas producers, installed by the Forter-Miller Engineering Company, Pittsburgh. The platform of this building is 8 ft. 6 in. above grade, and the coal is received on an elevated track and is unloaded directly from cars on the producer floor. From the gas main the gas is tapped out through the regenerating chambers into the furnaces, and another connection with the main provides gas for heating the ladles. This type of gas producer, having an inside diameter of 10 ft. 6 in., consists of a circular fire brick lined shell, with gas outlet on the side, and cast iron plate, containing the usual coal hopper and poke holes on top. Shell and lining are supported by four cast iron columns, which rest on the foundation of the producer. An ash hopper, made of heavy steel plates and calked air tight, is suspended from the bottom of the shell, and extends a few inches below the top of the ash pan, thus forming a water seal with the water contained in the pan. At its upper end the ash hopper is provided with a wind box, adapted to receive grate sections. A number of air tight doors are located in the wind box, through which the grate sections can be inserted or removed. These doors when open give access to the fuel bed through the grate sections, so that clinkers that should accumulate on the grates can easily be removed from the outside. A row of poke holes just above the wind box gives additional facilities for removing heavy clinkers. The air necessary for gasification and partial combustion is delivered into the wind box by two steam blowers located on opposite sides of the box and enters the fuel through the circumferential grates. A third steam blower delivers air through a centrally located vertical pipe covered with a cone-shaped hood to the center of the fuel bed. The fuel is supported on a bed of ashes, which rests in the pan below the hopper. The grate is inclined at a steep angle to the horizontal, thus allowing the incandescent fuel and the ashes to easily slide down on it.

Fig. 6.—Cleaning and Finishing Department in Foundry No. 2.

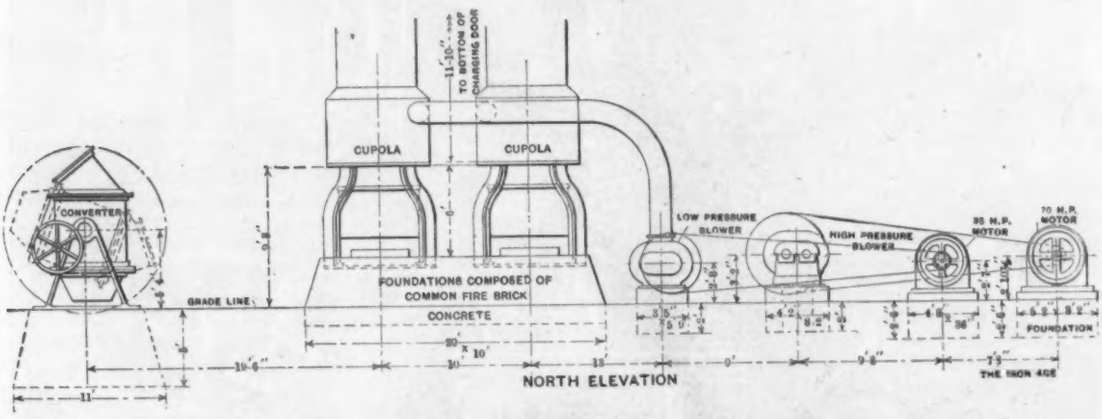


Fig. 7.—Arrangement of Cupolas and Converters in the Small Castings Department in Foundry No. 3.

The platform of the open hearth building and the producer house are connected by a walk elevated above the stockhouse floor, thereby bringing these two departments into direct communication.

The pouring side of the furnaces, Fig. 4, opens directly into the molding department, shown in Fig. 5. The metal is cast in 20-ton bottom pour ladles, from which the molds are poured. The greater portion of this department is devoted to floor work, although there are a few machines

and some benches for the lighter castings. The floor is served by two 30-ton electric traveling cranes, built by the Morgan Engineering Company, and eight 3-ton pneumatic jib cranes having a radius of 15 ft., installed by the Curtis & Co. Mfg. Company, St. Louis. These are conveniently located along the sides of the floor and are used in handling heavy flasks for large work. In pouring, the ladles are carried by the traveling cranes, which are also used for handling large flasks and castings. Two mold-drying ovens open into one end of this building. They have an inside area of 20 x 32 ft. each and are heated by producer gas. Two tracks extend from the molding floor into each oven, and the buggies operate on balls on the tracks, which are V-shaped. This arrangement dispenses with wheels and tracks entirely and has been found very satisfactory in operation. The sand stock and mill building and the coreroom open into the opposite end of the molding department. The former, in addition to a sand mill, contains bins in which stocks of the different grades of sand used in the foundry are carried. The facing is likewise mixed, and the sand for the molds is prepared in this department. Adjoining the coreroom is an oven, 10 x 24 ft., heated by coal.

The finishing and cleaning floor, Fig. 6, is located in a bay that parallels the molding department, and is served by two 15-ton Morgan electric traveling cranes. At one end opposite the grinding equipment and the machine tools are three pneumatic jib cranes having a radius of 15 ft. that are used to facilitate the handling of castings on this floor. In addition to the sand blast for cleaning, the following machines are provided for finishing: Three floor grinders, a swing grinder, drill, cold saw, planer and slotter. One end of the building is used for shipping purposes, the castings being loaded directly on cars after they are finished and weighed.

As the company has experienced a constantly increasing demand for small steel castings, and as these sections could not be made and handled to advantage in the other departments of the plant where large work predominates, it was recently decided to build an addition to be devoted largely to small work. This department is to be known as Foundry No. 3, and its steel making equipment will consist of two 5-ton Tropenas converters of the Fisher type. This addition, which will practically be a bay of the building which it adjoins and parallels, will be 60 x 280 ft. and will be served by two 5-ton electric traveling cranes. The cupolas will be located in an annex 20 x 60 ft., having a hight of 32 ft. 6 in. to the lower chords of the roof trusses. Iron for the converters will be melted in two cupolas having inside diameters of 45 in., which will be installed by the Whiting Foundry & Equipment Company, Harvey, Ill. The rated capacity of each is 7 to 9 tons per hour, and they will be operated alternately. The cupola charging platform will be 19 ft. 3 in. above grade, and will be served by a pneumatic elevator located outside the building, which will be installed by the Curtis & Co. Mfg. Company, St. Louis. To provide against accidents to the pneumatic machinery it will be provided with attachments for hoisting by hand. No stock will be carried on the charging platform, as the material is stored in close proximity to the cupola house in the yard. Blast will be furnished the cupolas by one low pressure blower, to be installed by the P. H. & F. M. Roots Company, Connersville, Ind. It will be driven by a 35-hp. General Electric motor. Blast for the converters will be supplied by one high pressure Roots blower driven by a 70-hp. General Electric motor. The 12-in. blast pipe to the converter will be underground. The converters are designed for alternate operation, permitting one to be constantly idle for repairs and relining. The distance the iron has to be carried to the converters has been reduced to a minimum, as shown in the arrangement of the cupolas and converters, Fig. 7. The adjoining cleaning floor will be utilized for finishing the bulk of the castings from this department, and shipments will likewise pass through the office referred to above.

The buildings have been ingeniously constructed, with a view of securing ample light, and that this has been achieved in its fullest measure is indicated by the fact that no artificial illumination is necessary even on the gloomiest days. The overhead clearance is unusual for structures devoted to foundry purposes, the buildings comprising department No. 2 having a uniform hight of 25 ft. to the top of the crane runway rails and 35 ft. to the lower chords of the roof trusses. To carry off the heat from the furnaces and the smoke and gases arising from the molds when they are being poured the apex of the gable roof over the molding and open hearth departments is 82 ft. high.

The original plant, known as Foundry No. 1, is devoted principally to the manufacture of cast steel bolsters and couplers, and consists of an open hearth building, gas producer house, molding floor and cleaning and finishing department. The open hearth building is 68 x 400 ft. and contains five 20-ton basic open hearth furnaces served by a Wellman-Seaver-Morgan charging machine and a 10-ton electric traveling crane. The gas producer house is 50 x 130 ft. and contains 10 Duff gas producers. The molding floor is 75 x 500 ft. and is served by three 30-ton electric double trolley electric traveling cranes and 18 5-ton pneumatic jib cranes. The cleaning and finishing department covers an area 75 x 500 ft., and is provided with two 15-ton electric traveling cranes and additional hoisting machinery for handling castings up to 80,000 lb. It is also provided with lathes, planers, grinders, &c. The core room is 40 x 150 ft. Located between the Missouri Pacific and the St. Louis & San Francisco railroads, ample shipping facilities are provided.

The product of the plant consists of various classes of castings used in the manufacture of steam and electric car and locomotive parts and miscellaneous sections for all purposes. The officers of the company are: Frank H. Johnson, president; John Scullin, chairman Board of Directors; Thomas M. Gallagher, vice-president; J. N. Maher, general manager; V. C. Turner, secretary and treasurer, and P. J. Howard, chief engineer.

The Casting of German Silver Knife Tips.—The *Brass World* says that many of the German silver tips on pocket knife handles are castings, being probably the smallest that enter the brass foundry. In the use of sheet German silver the tips must first be blanked out. This necessitates the production of 40 or 50 per cent. of scrap. After the tips have been blanked they must be formed under a drop, with successive annealings, until they are formed into the oval shaped ready for use. The cast German silver, however, only requires polishing and is ready for use. The tips are cast with a large number on a gate and with two gates in a flask. They are poured "on end." Scrap German silver is used, and about 2 oz. of aluminum are added to 100 lb. of metal. The aluminum reduces the oxide in the German silver and the metal then runs very freely. The color is also much improved and soundness is imparted. In the smallest sizes it takes several hundred cast knife tips to make a pound. The price is from 50 cents to $1 a pound.

The new order of the Interstate Commerce Commission promulgated last year which requires that 75 per cent. of the cars in every freight train shall be equipped with power brakes is being promptly complied with by the leading railroads. The Pennsylvania Railroad reports that 98 per cent. of its freight cars on lines east of Pittsburgh are now equipped with automatic airbrakes. A similar percentage is reported for the New York Division of the New York Central. The *Railway Age* says that cars not now equipped with power brakes are old ones of small capacity, principally used in local service and at shops and terminals. It is therefore easily possible for all roads to operate the brakes on 75 per cent. of the cars in a train and the necessity seldom arises for switching cars not so equipped to the rear of the train.

After several years of depression, in which such work was neglected, an effort is now to be made to resume railroad construction in South Africa. A bill has been introduced into the Cape House of Assembly to authorize the Government to raise £2,011,166 for building 483 miles of new lines.

Annealing and Crystallization of Steel.

BY JAS. H. BAKER.

The field of knowledge, investigation and possibilities concerning steel is so wide that it is better to treat the matter in sections as far as possible. This article deals with steel for hard service, say open hearth steel of 0.60 per cent. carbon, but the principles involved in its treatment apply equally to other carbons and other steels.

Fig. 1.

Annealing in its broad sense has come to mean almost any heat treatment of steel. In its old sense, and as generally understood now when stated simply, we take it to mean heating the steel to a red heat and allowing it to cool slowly, and it is in this last sense I use the word in what follows.

I believe serious error prevails generally as to the usefulness of annealing in order to get steel into its most trustworthy condition. I need hardly say annealing has its uses in removing the strains which have arisen in forgings by varying degrees of work given to different parts, and strains resulting from unequal cooling of forgings or castings. It also has its use where a piece of work has been finished at a high temperature, because there is a great difference in results between allowing a high heat to run down to a certain temperature and then cool slowly, as against bringing the heat up to the same temperature and cooling slowly. Again, annealing is useful as applied to metal which has been strained beyond its elastic limit, such, for instance, as chain links which had been pulled until they became more or less distorted in shape.

But as to annealing producing the best condition in steel both as to strength and safety—in other words, the highest possible tensile strength combined with the greatest ductility—instead of its being useful it is a detriment, and a serious one as compared with treating the steel in a proper way. Annealing is practiced by workmen to render hard steel easy to work—*i. e.*, lessen the cohesion of the particles so that they may be parted easily by cutting or other tools. Or, stated in another way, annealing means, besides the other effects named, disintegrating or breaking down the integrity of the metal, and therefore is just what is not wanted to fit steel for strength and safety. Noncrystalline steel is very hard to work, for the very reasons which make it serviceable in use. It is true that annealing renders much steel better than it was before, but this is largely so because of the very poor and varied condition it was in.

There has been a great deal said about steel crystallizing in use, but there is room for doubt on this point. I have taken pieces of noncrystalline steel about of the quality of sample No. 2 in the accompanying Table of Tests and had it hammered lightly for a long time cold, and other pieces have been bent back and forth slightly under a press until nearly destroyed, and on cutting and breaking these pieces there was no sign of crystallization. Other things equal, the size of the crystals indicates what steel will stand in the way of vibration, bending back and forth, or other punishment.

Recently I saw a lot of eye bars which had been tested to destruction. They showed a crystalline fracture with little reduction of area, and yet these were made of special steel and annealed. When this kind of a bar breaks, as all things will when used enough, it will be said of it, "crystallized by use." The fact is that the lot of bars out of which these samples came was sent out in a crystalline condition and use will simply separate the faces of the crystals, and the coarser the crystals the sooner will this occur.

Fig. 2.

In speaking of a crystalline condition, I mean as viewed by an ordinary glass, because, after all, steel in any condition is composed of particles. It has been demonstrated that ordinary steel may be made quite hard, and therefore with a high tensile ultimate and elastic

limit, and yet be quite ductile. As an illustration of this, note the tests here given of some specimens:

Table of Tests.

Sample.	Elastic limit. Pounds per square inch.	Tensile strength. Pounds per square inch.	Elongation. in 2 in. Per cent.	Reduction of area. Per cent.
No. 1	58,290	108,700	20	23.7
No. 2	89,880	148,000	19	27.4
No. 3	138,400	152,600	Not given.	27.1
No. 4	143,900	170,200	17.5	26.6
No. 5	153,000	181,200	Not given.	18.4

No. 1 was annealed. No. 1 was like Fig. 1, the balance being like Fig. 2 in appearance of fracture. In fact, sample No. 2 is the identical fracture shown in Fig. 2, while the balance of specimens showed fractures yet more silky than sample No. 2.

Fig. 3.—It should be noted that the dark streaks on this reproduction are shadows, as the surface of the steel was the same all over it.

The ideal condition of steel, at least as far as combined strength and toughness are concerned, is that of a noncrystalline condition. Whether a crystalline condition is needed to produce the best antiabrasive qualities for such articles as gears, car wheels, &c., is another question. But if it is so needed the crystalline structure should be fine.

The illustrations shown were from 1½-in. round bars. Fig. 3 is a magnified view of the fracture of steel like specimen No. 2. This steel, notwithstanding its hardness and high tensile quality, was bent cold back and forth 125 times and took 15 bends back and forth to break it after the first crack appeared, the increment of the cracks from each side being clearly shown in the illustration. A bar of the same size of commercial open hearth soft steel will not stand the same bending one-third as many times. Again, in transverse tests the steel of specimen No. 2 is fully three times as stiff as ordinary open hearth steel, and yet more ductile.

It now seems possible to tell by the fracture of a broken bar pretty closely what it will develop in a physical test if the ordinary analysis is given. But it is clear that for hard service steel should be as free as possible from crystals. And this we do not get by what is known as annealing.

The James H. Watson Company, Bradley, Ill., has incorporated with a capital stock of $100,000 to manufacture sheet metal goods. The incorporators are Elizabeth R. Watson, Malby R. Failey, and Austin H. Long.

Fluorspar in Foundry Cupolas.

George G. Blackwell, Sons & Co., Limited, Liverpool, England, have published a statement replying to the observations concerning fluorspar in foundry cupolas contained in the paper by N. W. Shed, Buffalo, N. Y., read in June at the Cleveland convention of the American Foundrymen's Association. Mr. Shed stated that he found fluorspar to be an inferior flux; that it did not remove sulphur; that the properties of the iron were not improved by its use, and that limestone was far cheaper and at the same time a better flux. In answer the following points are made:

Fluorspar as a flux, not only in cupola practice but generally is, much more valuable than limestone, and on that account its use in metallurgy is very rapidly increasing. The production of our mines is now over 50,000 tons per annum, and is steadily increasing. In the second place, a large number of the founders in this country admit that they do find a reduction of sulphur content in the iron when fluorspar is used. Its action on sulphur is also borne out by the fact of its extensive use in the basic open hearth furnace for the elimination of sulphur. As to the improvement or otherwise of iron, when fluorspar is used in the cupola, we have evidence of a large number of the best founders in this country that they do find the iron improved. Fluorspar undoubtedly assists in eliminating slag. The slag is thinned, and the metal is kept hotter; consequently, sharper castings will be the result. In addition to this the charge in the cupola is brought down more rapidly by the use of fluorspar. As to the contention that limestone is far cheaper than fluorspar, this, of course, goes without saying; but the intention is not to use fluorspar alone as a flux, or as a substitute for limestone, but that the fluorspar should be used in conjunction with the limestone, the usual mixture being 20 lb. per ton of iron melted. . . . All of the fluorine in the fluorspar combines with silica to form fluoride of silicon, which is a volatile compound, and goes out of the stack. This relieves the slag of that amount of silica, and consequently reduces the refractory nature of the slag. The balance of the calcium fluoride (fluorspar) is then left behind as oxide of calcium, or quicklime, and this behaves exactly as an equivalent amount of limestone would, but as the limestone formed by the decomposition of the fluorspar is pretty well broken up and distributed through the charge in a very fine state, it forms an exceedingly active flux. One reason why less fluorspar is necessary for fluxing a given weight of silica is the fact that part of the silica is driven out of the chimney, and part of it slagged off in the charge. In this way every ounce of fluorspar is used for fluxing, while in the case of the limestone all of the carbon dioxide gas contained in the limestone is driven out of the cupola without assisting the fluxing in any way.

The American Locomotive Company is building an extension to the building occupied by its automobile department at the Providence, R. I., works, which will be used for the manufacture of drop forgings. However, no large equipment for drop forging is contemplated for the present.

John A. McGregor has been appointed president of the Union Iron Works, San Francisco, a subsidiary of the Bethlehem Steel Corporation.

The American Exporter's Methods.

An Answer to a Recent Criticism.

BY E. I. CLEGG.

Seldom indeed has so caustic an indictment of the American exporter appeared in a trade journal as that contributed to *The Iron Age* of September 20. The two pages, 730 and 731, present so emphatic a denunciation of American export practices that readers possessed of no other information than that submitted in this remarkable tirade must be constrained to the belief that Americans in everything pertaining to the merchandising of goods abroad are a nation of fools. We are told with bland assurance that the American "has never studied, and to-day is not studying, the circumstances under which his machines will have to work." "He knows lamentably little about the character of the people he would like to deal with, and he is making practically no effort to learn their customs and requirements." And further:

> The American ships his goods in ton cases when they are to be lightered from the vessel; he packs them in 1000-lb. packages when they are to be transported muleback; he sends open bearings to the Sahara Desert, and the trouble is he does all this when he knows better. But he is only firm, not obstinate. He sends tons of beautiful literature, written in perfect English and embellished with the finest engravings, to countries that only know a mighty little of their own tongue. A personal representative he has heard of, but only the slow-going Germans do that trick, and he does not believe in that way of introducing his wares to a distant people. He makes his machine 10 ft. wide, and is not troubled as to whether it will go through the custom house of the country or not. That is the way he has always built it, and if they don't want it they can leave it alone. If an American purchaser wanted that same machine turned upside down, with the legs waving in the air, he would cheerfully build it that way, under the impression that the purchaser knew what he wanted and since he was willing to pay for it he ought to have it. But the pleadings of all the wild men of Borneo would not induce him to add half an inch to the length of an unimportant screw.

And what is the reason assigned for so crass a condition of merchandising ignorance? We are not left in the dark. We are coolly informed that "the keynote of the whole matter may be found in the overwhelming conceit of the American producer."

Consul Answers Consul.

Now I do not have the very great regard for statements of consular representatives in these matters which the author of the contribution in question seems to have, but it is fair to quote these authorities on the other side. If reliance is placed upon their utterances to prove the idiocy of the American producer when engaged in the export business, we may offer similar testimony to offset, at least in part, the chastisement based so confidently upon consular evidence. I will take the latest issues of the *Daily Consular and Trade Reports*, and under date of September 22 I find a paragraph about salesmanship of the American brand. The item is headed "How Sales Are Made." It reads thus:

> How an American machinery agent secured an order in Japan is related by the commercial agent of New South Wales in the Far East as follows: It was a question of some lathes for a large factory which was being started. They were required of a certain size. The agent for the British firm said, "That is 3 inches longer than they are made, and we can make no alteration." The American said, "I will make them to any size you like." The American secured the order.

Evidently that American was not aware that later on Mr. Burr would declare that very practice impossible. And what in the name of common sense was that American doing there? Perhaps he did not know that we have never heard of personal representatives abroad.

These facts are somewhat destructive of Mr. Burr's assertions, and it may be that he cares little or nothing for the opinion of the commercial agent of New South Wales. Let us set that down as the product of British banter and of no account, and then turn to a still later issue of that enlightening periodical from which the gist of the information in the article of September 20 was drawn. In the *Daily Consular and Trade Reports* of September 24 the Consul-General, A. M. Thackara, has something to say of typewriter supplies and their introduction to the German trade. The concluding paragraph of his report is as follows:

> German, English or French commercial travelers and agents of American makes frequently call on the dealers, hear their complaints, rectify any faulty shipments, fill smaller orders than if the dealers had to purchase their supplies direct, present their newest goods, &c.

Our Consul-General and Mr. Burr can settle their differences of opinion regarding matters of fact in any way that is agreeable. They are far from agreement at this time. One knows that we have personal representatives even among the Germans; the other asserts that we have heard of such practices but that we do not believe in that way of doing business. Somebody is sadly misinformed.

I do not forget that it is possible for equally sincere men to have widely diverging beliefs. Members of the American Society of Mechanical Engineers will remember a recent meeting where statements were made regarding the smoke consuming apparatus of the New York Post Office. Two members having offices within easy range of that building were diametrically opposed in telling what they actually saw in their observations of the post office stack. I well understand the possibilities of getting facts distorted even in the evidence of eye witnesses, and therefore I wish to be as charitable as I can. But granting Mr. Burr's good faith in the matter, I cannot but demur to his indictment as a whole. Where he undoubtedly errs is in making general application of certain complaints recorded by consular representatives of the United States. These individual instances are presumably true, but that they are typical of the exporting producer as a class is almost too absurd for patient refutation. Consularitis is a widespread disorder, and a careful reading of the reports sent home by the representatives of other nations will disclose a series of complaints quite similar to those that furnish material for strictures on American shortcomings.

Examples of American Enterprise in Exports.

I'd like to bring the writer of the article of September 20 in contact with certain typical American manufacturers and let him hear what they have to say about merchandising abroad. A certain maker of trimmers in Grand Rapids took his machine abroad, put a working sample on a team and set out through the land to give demonstration of the possibilities of his machine in pattern making. He built up a trade in a way that I have yet to hear of any foreigner improving. He was there with the goods, showed what they would do, planted the germ of fruitful discontent among old practices and has an office in Manchester and doubtless other places abroad.

I recall another American, a maker of twist drills, this year the president of the Chamber of Commerce in his home city. He has built up a magnificent foreign business and his plant has shown a truly remarkable growth. He has traveled extensively, has made about as thorough a study of the export trade as any man I can now call to mind, and is as deservedly successful as he can well expect to be when he so flagrantly violates the practices laid down by Mr. Burr as typical of the American.

There are also certain manufacturers of the Queen City of Ohio who I know have made systematic visits abroad for the purpose of posting themselves on the nature of the foreign demand and the best possible way to supply it.

Another acquaintance of mine represents a Cleveland manufacturer of screw machines and has returned from an extensive business trip through Europe with the treasurer of his company. This is but the repetition of a similar journey made last year.

I remember, too, a very bright representative of a boring mill manufacturer in Connecticut who made quite a record for himself, especially in France. He was of the engineering type that could make machines do all that was claimed for them.

And there is another shop-bred salesman I last heard of at Birmingham, England. He is pushing the product of an enterprising builder of screw machines that has headquarters in Vermont.

If these are not personal representatives of the best

possible sort I fail to understand the meaning of the term.

The Personal Equation.

I am not now engaged in manufacturing lines, so that what is here written is in no sense a personal matter. But it so happens that I have had the privilege of erecting American machinery abroad. I have also erected English and Belgian machinery in America. For six years I was with an English (Lancashire) engineering firm exporting large quantities of machinery, and I have had the additional experience of being for a number of years with a New England firm that was reasonably successful in its efforts to get foreign business. My experience teaches me that the American manufacturer is no less alert to the possibilities of foreign trade than his competitors in England, France, Germany and Belgium.

It must be remembered that there are wide differences between manufacturers of the same nationality, the spread being often as great as between two of different countries. I once exchanged experiences with an American manufacturer regarding a certain importer in a German city. His accounts with my firm were promptly met and the connection was very satisfactory. But my friend's experience with the same man had been different. Credits were altogether too long and there seemed to be a string of unsatisfactory conditions attached to the relation. I have always set the difference down to the way in which the man was handled. There are doubtless many parallels, cases in which the uncomplimentary things come to the Consuls and are recorded as habitual and distinguishing factors.

Adaptations of American Products.

Surely it is not true that an American manufacturer absolutely refuses to make any change in his product to suit the foreign purchaser. I have seen American built planers abroad with marked and important variations from the standard type. As a matter of fact, this appraisal of the peculiar advantages of the market abroad has been going on for years, certainly as long ago as the trip made to England late in the 50's by Messrs. Brown and Sharpe. They were becoming interested in the fine tool trade and mustered up courage to visit the Whitworth shops at Manchester. They little expected to see the progress of any of the work as it was carried on there —as competitors they were seeking no favors of the kind —and they were pleasantly surprised when they were offered the freedom of a visit through the plant. There began the official recognition of the open door policy at the famous Providence plant, and as Mr. Sharpe once told me: "We decided on the boat coming back that if Whitworth could stand it we could, and it turned out a good thing."

The Packing of Goods for Export.

The condition of goods as they reach the consignee is all important, but I fail to see how American products suffer in any general comparison. I have heard experts condemn some English textiles in comparison with German and American goods, the point being made that the latter were not weighted with the excessive sizing that characterized the former, and specimens that have come under my observation would bear out that statement. I have unpacked wood screws from Nettlefolds as well as from the American Screw Company, and I do not remember that in any wise were the English screws packed in a superior manner. And in going through hardware stores abroad I have found a general recognition of American acuteness in presenting an article in attractive style. One salesman actually attributed the selling quality of American made goods to the manner in which they were packed and their merits set forth. In his opinion the native product was more substantial in wearing qualities. It is beyond all question that the way in which small tools are sent out of this country preserves their "newness" in admirable style. I have a scale on my desk that has traveled several thousand miles since it left the American factory where it was made. It is wrapped in oiled paper, then inserted in a thin leather case and put into a pasteboard box. That explains the individual packing that insures the arrival of tools with perfect edges and entire lack of scratches. It is a delight to pick up a micrometer several thousand miles from home and to note its excellent condition.

Foreign Opinion of American Machinery.

Certainly I have heard criticisms of American made products. One in particular is worth repetition because it came from an English manufacturer of machinery, who has an imposing array of gas engines designed in Pittsburgh. In point of fact a Westinghouse representative in England, when I asked him for the location of a notable plant, advised me to visit this particular works. When I arrived and had been there long enough to feel quite free about the propounding of questions, I inquired if they had any criticism to make of machine tools built in the United States. And the only thing that occurred to them was the advisability of a greater use of steel for some of the small parts that were made of cast iron. Whether it is that these get more rough use abroad than they do here, or whether less care may be exercised in moving machinery, is open to further light. It was not made clear that any great trouble had been occasioned by the weakness referred to, but I offer the testimony as a friendly criticism from an Englishman with a very cordial regard for things American.

The Value of Consular Testimony.

But to get back to the basic evidence for the attack on the American. I think I have shown that there are many facts on the other side for which I can personally aver. How stands the Consul? The American consular service has been largely recruited from the faithful who were in the thick of the fight when the campaign was pushed to a winning finish. They were rewarded by exportation and under the circumstances have turned out as well as could be expected. In most instances they were untrained for the positions to which they were appointed, and the trouble this incapacity has occasioned successive administrations is shown by the regularly recurring attempts to take the consular service entirely out of politics.

Consuls of all countries never seem to forget that they themselves are exported goods. They listen sympathetically to the woes of importers and others and then find relief in a homeward letter brimful of the business blunders of their countrymen. Knowing the circumstances under which they have been shipped abroad and the manner in which they loosely fill the bill of lading they are, as a class, suspicious of all things exported. There are exceptions to most rules and the Consul, circumspect and familiar with the country he represents as well as the one to which he is accredited, can and frequently does prove his worth. But consular criticism from these exported Americans does seem altogether too much the result of introspection. For instance, a hastily picked sample of raw consular material is shipped abroad. He lacks linguistic qualifications in all probability, and thereafter he can hit hard at exporters who send to foreign lands catalogues printed only in the vernacular of the United States. Remembering how ill he was fitted to the job, he well knows the annoyance of misfit shipments.

One must not be too receptive of the assertions of these expatriates. What they aver should be checked by what we know of the American manufacturer at home, and when there comes that ebb of the now flowing tide of domestic prosperity we may reasonably expect a greater impetus toward the markets of the world. When that time comes the American will not be found a sleepy laggard. He will take up the work with the old zest; he will renew former activities and the farsighted foreigners revered by so many of our Consuls will, of necessity, get a better polish on their specs if they would be sure of seeing his finish.

Under the terms of the sliding scale bill passed by the last Massachusetts Legislature the Boston Consolidated Gas Company has just made public its report. The most important feature is the statement that the total cost of gas during the year, including repairs, but excluding interest, depreciation and reserves, was 57.11 cents per 1000 ft. This was divided as follows: Cost of manufacture per 1000 ft. sold, 31.75 cents; cost of distribution, management and other expenses, 25.38 cents.

The Graham Piston Ring Grinder.

A machine for finishing piston rings, particularly automobile and gas engine rings, is a new product of the Graham Mfg. Company, Providence, R. I., and is illustrated herewith. As will be gathered from the illustrations, it is intended only for grinding the periphery of the rings and not their sides. This it will do on rings up to 6 in. in diameter. To finish their circumference accurately it is of special importance that the rings be ground under conditions similar to those that will exist in the engine; in other words, they must be ground while in tension. Hand fitting that is required by the usual method of ring grinding is entirely avoided.

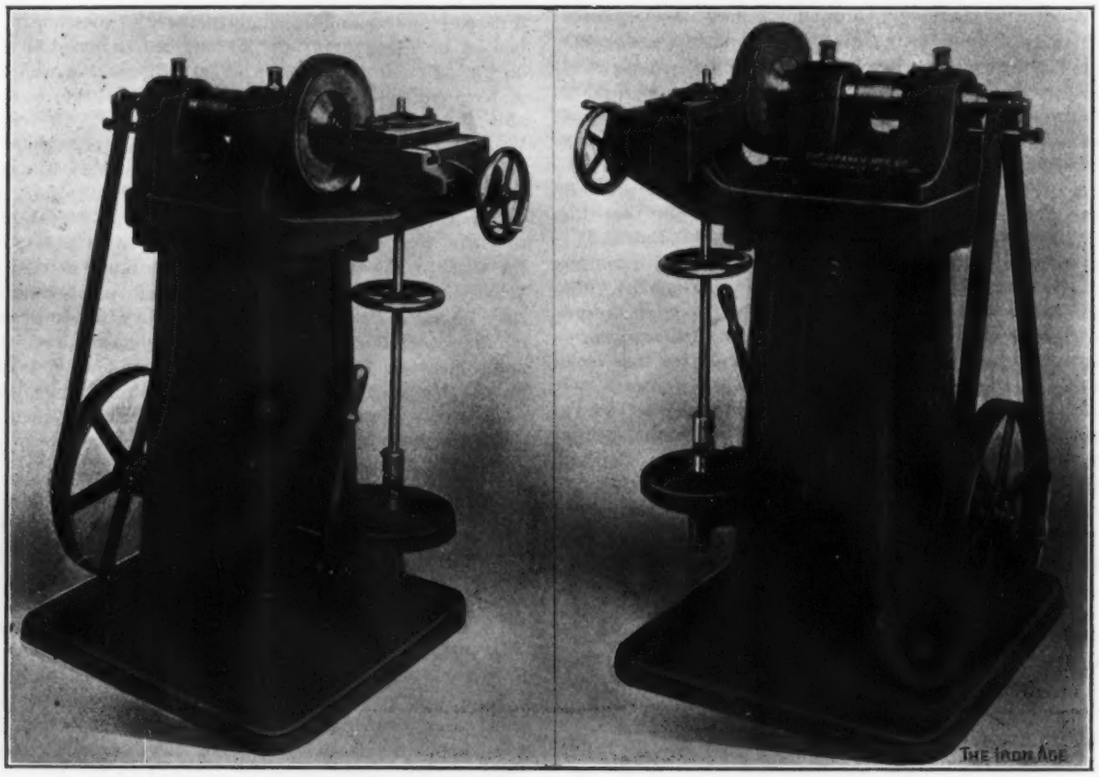
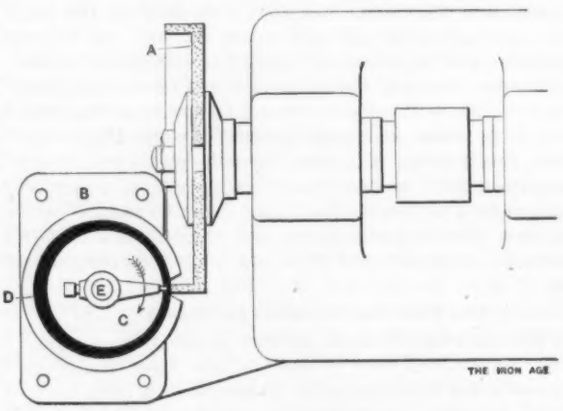


Fig. 1.—Two Views of the New Piston Ring Grinder Built by the Graham Mfg. Company, Providence, R. I.

The machine was invented by Warren Chambers of Toronto, Ont., formerly of Beloit, Wis., and was first tried in the works of the Fairbanks-Morse Company of the latter place on the piston rings of gas engines. Fig. 1 shows two views of the machine and clearly indicates the construction, most of which is exposed. Fig. 2 gives two elevations and a top view of the wheel and work by referring to which the operation may be clearly understood.



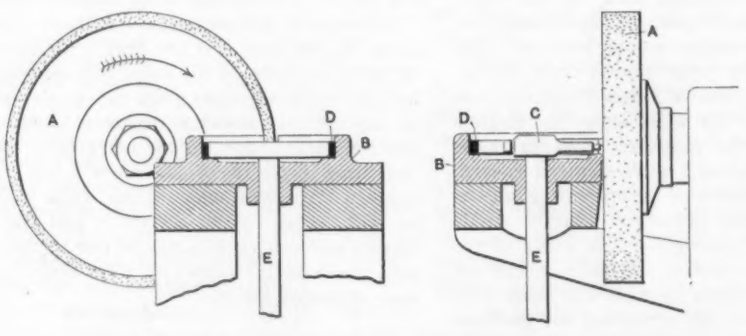


Fig. 2.—Details of the Wheel and Work on the Graham Piston Ring Grinder.

The ring D is held in a shallow cup-shaped piece, B, which in turn is bolted to the movable slotted platen. The ring holder or cup-shaped piece does not turn around, but is bored out on the top side to about the diameter of the piston to take the ring. In the middle and driven from a worm wheel below there is located a vertical shaft, E, on which is fastened a fingerlike driver, C, the end of which engages in the slot between the ends of the ring. It will be seen that when the vertical shaft is slowly revolved the ring will be moved inside the cup and its shape constantly changed as the high spots are ground off until the wheel touches all the way around, and then the ring is finished. To obtain a grinding contact the platen, ring and holder are moved bodily up to the face of a

cupped emery wheel, A, which gains access to the ring through a narrow notch cut out of the ring holder, as may be seen in the plan in Fig. 2.

The ring driving mechanism is driven by belt from the spindle to a shaft running through the column and connected at its opposite end to a worm and worm wheel, and thence through universal joints and shafts to the ring driver. By changing the outer spindle pulley any desired ring speed can be obtained. The handle shown near the worm gear in Fig. 1 is used to engage and disengage the worm and worm wheel, and in the latter condition the ring can easily be moved by the hand wheel on the vertical shaft.

The machine is contructed in excellent accord with the service required of it. It is heavy and rigid throughout to take up vibration, and the head and the part on which the head rests are solid material; the column alone weighs 325 lb. The bearings are dustproof and are tapered, so that they may be adjusted for wear. To the proper working of a machine of this character end play of the spindle is not permissible. To avoid it an adjustable tension arrangement has been placed at the end of the spindle opposite the emery wheel, as may be seen in Fig. 1.

A ring which is turned larger than the bore of the cylinder, whether it be of uniform thickness, bored eccentrically or cast to a theoretical tension curve inside, will not have uniform tension or bearing on the surface of the cylinder until it is filed or scraped to a fit or let run until it wears itself to a bearing. The latter method of obtaining a fit is obviously undesirable as it requires time, and in gas engine manufacture, where the efficiency depends to a large extent on the compression, the rings must have perfect bearing. It is the contention of the manufacturer of this grinder that the only way to obtain such a perfect bearing is to grind the ring under the same conditions or in tension, as it is subjected to under working conditions.

The grinding wheel is 10 in. in diameter, the spindle pulley runs at from 2000 to 2200 rev. per min., the hight of the spindle from the floor is 40 in., the base of the machine is 26 x 26 in. and the weight complete without the countershaft 800 lb.

The Indiana Rolling Mill Company.

The Indiana Rolling Mill Company, Terre Haute, Ind., has filed articles of incorporation with the Secretary of State of Indiana, the capital stock being $200,000. The company has purchased 5 acres of land at Linton, Ind., at the junction of the Southern Indiana and Illinois Central railroads, and will begin the erection of a rerolling rail mill immediately. Initial operations are expected to begin January 1 next, with a producing capacity of 100 tons of rails every 24 hours. Later on other iron products will be added to the output. The mill will produce 12 to 40 lb. steel sections, splices and spikes. The office of the superintendent will be in Linton, while the general offices will be located in the Opera House block at Terre Haute. The capital stock is paid up and the stockholders are prominent capitalists of Terre Haute and Linton. The officers are: President, Job Freeman, Linton; vice-president, J. W. Hamilton, Linton; treasurer, Joe Moss, Linton; secretary and general manager, J. R. Finkelstein, Terre Haute. Other stockholders are Sam T. Greenberg, Terre Haute, and E. L. Wolford, D. R. Terhune and W. J. Freeman of Linton.

Under the title "Experiments on the Strength of Treated Timber" the Forest Service of the Department of Agriculture issues the report of Prof. W. Kendrick Hatt, civil engineer of the Forest Service, on the experiments carried on by him in investigating methods of preserving timber and studying the influence of preservative processes upon the strength of wood. The experiments were begun at the St. Louis Exposition and were continued at the timber testing station of the Forest Service at Purdue University, Lafayette, Ind.

San Francisco Affairs.

SAN FRANCISCO, September 22, 1906.—Local business was more or less affected by the run on the Hibernia Bank of this city, which began and ended in a few days. It was a fierce run while it lasted and it shook the whole financial fabric of this city, for the resources of the bank exceed $62,000,000, of which $60,000,000 is deposits. It ended as suddenly as it began, with a very small portion of the bank's assets withdrawn. The bank had called on many of its largest borrowers to pay up, as most of the loans had run beyond their time, and the result came near being a suspension of many improvements in progress. The Clearing House exchanges took note of the trouble, and for the first time in many months the weekly transactions showed a falling off from those of 1905. There was no run on other banks, but large numbers of citizens were watching developments, and had the doors of the Hibernia been closed every one in the city would have been assailed. The bank had trouble with some of the foreign insurance companies that refused to pay their policy holders and characterized their action in fitting terms, and many think it was the representatives of these companies who spread the report that the bank was about to fail.

Insurance money is at last arriving steadily and the amount now paid is stated at $90,000,000. It is believed too that a larger pro rata of the whole amount of the policies will be paid than had been supposed, and possibly San Francisco will get $60,000,000 more, making in all $150,000,000, which would be 70 cents on the dollar. That leaves over $72,000,000 lost, as far as the face of the policies is concerned, but this by no means covers the total loss, not including the loss from the enforced cessation of business.

The work of building up the business part of the city has at last fairly begun, and the volume of new contracts and permits is over $1,000,000 a week. In fact, the permits since July 1 have amounted to about $15,000,000, and are increasing every day. Most of these buildings are for stores or offices, running from two to eight or nine stories. A few, not many, are skyscrapers, some of them altogether of iron and steel. About 60 per cent. are frame and the rest, with the exception noted, principally of brick or cement. Large quanties of cement are arriving by every vessel from Antwerp or London, but very little iron or steel is coming by them. The fact is that our people have as a whole given up the idea of building any finer business blocks than they have been accustomed to. There are heavy consignments of steel, iron and hardware coming by rail. Now is the time when our hardware merchants should be making money, though there are a large number of them to share the trade. Everywhere amid the débris establishments are to be seen where hardware is sold or where it is about to be sold.

J. O. L.

Rail exports from Great Britain were more satisfactory in August than for some time, amounting in that month to 66,210 tons, as compared with 49,045 tons in August, 1905, and 41,077 tons in August, 1904. For the first eight months of 1906 the aggregate export shipments were 303,995 tons, compared with 369,496 tons for the first eight months of 1905, and 346,661 tons to August 31, 1904. Deliveries to Argentina in the three years for the periods named were 86,113 tons, 61,793 tons and 41,121 tons, respectively. In general there has been a falling off in shipments to the British colonies. To British South Africa the exports were 43,070 tons in the first eight months of 1904 and only 8124 tons in the first eight months of this year. For British India the figures were 101,203 tons and 84,824 tons, respectively, and for Canada 30,879 tons to August 31, 1904, and only 6514 tons to the same date this year.

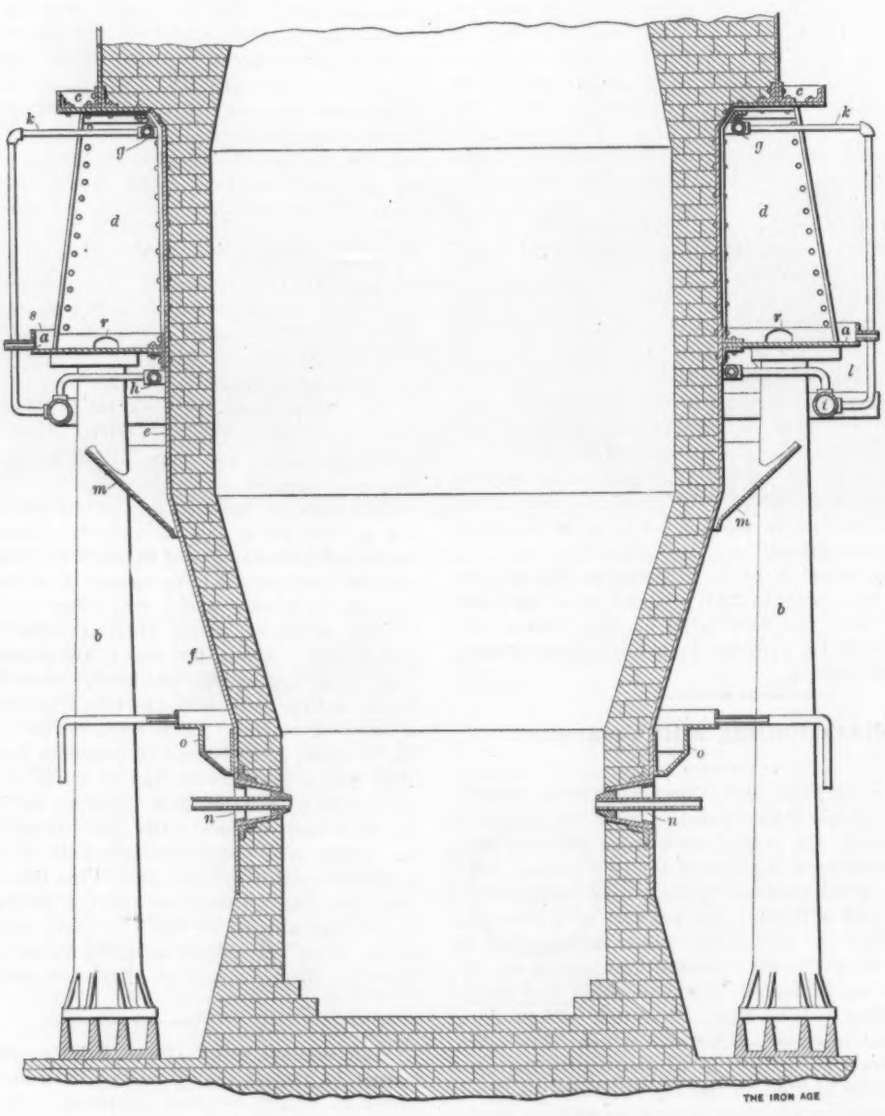
The seventh report by Prof. M. Rudeloff on iron nickel alloys has just been published by the Royal Bureau of Tests at Gross-Lichterfelde-West, Germany. It deals with nickel-iron-carbon-manganese alloys.

A Method of Bosh Cooling for Blast Furnaces.

The cooling of blast furnace walls is provided for in a system recently devised by Ledyard Heckscher, general manager of Richard Heckscher & Sons Company, operating the Swede Furnaces at Swedeland, Pa. The purpose of the invention is to insure the cooling not only of the bosh walls, as is now done by the use of cooling plates embedded in the lower brickwork of blast furnaces, but to afford outside cooling for the walls above as well as below the mantle, taking in the entire upright portion of the stack. By doing away with all cooling plates and tubes within the bosh and cylindrical portions of the furnace, which are the portions subjected to greatest wear, the removal of the latter is made easier, and the walls may be rebuilt without disturbing adjacent parts.

In the illustration, which is for the most part a vertical section of a blast furnace equipped with the new cooling arrangement, *a* is the mantle, which is supported on the columns *b*. Instead of having the brickwork of the upper part of the furnace rest directly on the mantle a second or false mantle is provided, shown at *c*. It is supported by the first mantle through the use of vertical radial plates, *d*, placed at intervals and carrying the weight of the superstructure of the furnace. The external shell *e*, or mantle jacket, covering the vertical portion of the furnace, extends from the upper mantle downwardly to the bosh, and there connects with a similar jacket inclosing the bosh, as at *f*. The above construction gives the mantle its usual position in relation to the furnace walls and at the same time makes the latter easily accessible to means of cooling.

Two circular pipes, *g* and *h*, are provided, having small perforations through which jets of water are directed downwardly and inwardly against the shell of the furnace. These circular pipes are connected to a main supply pipe, *i*, by means of the auxiliary pipes *k* and *l*. Below the lower circular pipe is a funnel shaped deflector, *m*, which allows sufficient space between itself and the exterior shell *f* to permit the water to cover the bosh. Below the bosh and out of the way of the tuyere coolers is an annular trough, *o*, having a water tight connection with the shell and connected by a drain pipe with the sewer.



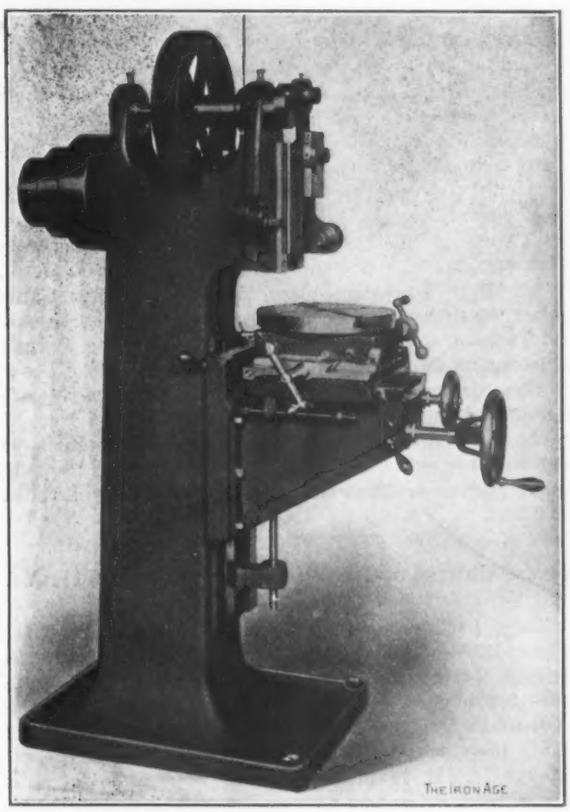
A Method of Bosh Cooling for Blast Furnaces.

There are openings, *r*, in the vertical plates *d* so that the water may circulate freely in the mantle trough *s*.

A number of advantages of the apparatus are pointed out by the inventor. The danger of leaks into the interior of the furnace at points where leaks are difficult to discover is prevented. With embedded cooling plates such leaks are apt to arise from the unequal expansion and contraction of the pipes and from bronze plates becoming worn or having small holes in them. The walls of the furnace are cooled evenly from the upper melting zone to the tuyere zone, which produces smooth interior walls and tends to prevent hanging and slipping. The device also allows cooling to be reduced or entirely suspended at any desired portion of the walls, in order to reduce and displace any interior accumulation at undesirable points without losing coils or plates, which when lost leave the walls at such points unprotected.

A New Garvin Die Slotting Machine.

A newly designed die slotting machine, recently brought out by the Garvin Machine Company, New York City, is shown in the accompanying illustration. This machine, so far as its fundamental principles are concerned, is one of the oldest products manufactured by the company, but in its present form is built throughout from patterns of entirely new design. The knee of the machine is of the solid extended type as used on the Garvin milling machines. Large interchangeable hand wheels control the elevating and lowering of the knee and the in and out movement of the saddle, all of which movements may be accurately adjusted with reference to micrometer dials. Adjustable stops are also provided for the table and saddle movements. The handle for the rotary table is arranged for using dials for dividing purposes, but for ordinary divisions and rapid work it may be entirely removed and the table revolved by hand, using a lock pin device, which may be engaged in any of



The Redesigned Die Slotter Built by the Garvin Machine Company, New York.

12 equidistant positions for square, hexagon, octagon and duodecagon sided work.

The stroke of the machine is 2½ in., which is ample for the class of work for which the machine is intended, and greater strength is secured than where an adjustable pin is used to give variable lengths of stroke. The speed can be changed by means of the three-step cone pulley. The slide for the ram can be swiveled 5 degrees either way from the vertical and can be set by a graduated index, thereby insuring the same draft to every part of the die. The tool block is well adapted for holding special tools. It swivels in a center near its lower end, and at the upper end, carried in a yoke, are two hardened plugs which bear on a cam that is bushed into the lower end of the connecting rod. From this cam the tool block derives a partial rotary motion, thus locking it on the down stroke and causing the tool to clear on the up stroke.

This machine is well adapted to all kinds of die work, small key seating, both straight and taper; also internal or external gear patterns, where draft is required, and all common slotting operations. The two cross motions and the rotary table provide for following any outline. The weight of the machine is 1150 lb.

The Foundry Supply Association.

The constitution of the Foundry Supply Association, as adopted at the recent meeting at Philadelphia of the committee appointed for that purpose, has just been promulgated. The following officers have been elected: President, S. T. Johnston, S. Obermayer Company, Chicago; first vice-president, E. H. Mumford, E. H. Mumford Company, Philadelphia; second vice-president, E. A. Kebler, Matthew Addy & Co., Pittsburgh; treasurer, J. S. McCormick, J. S. McCormick Company, Pittsburgh; secretary, H. M. Lane, 610 Schofield Building, Cleveland, Ohio. There will also be six trustees, but this list has not yet been completed. Secretary Lane will meet with the Foundrymen's Association of Philadelphia on Wednesday evening, October 3, to perfect arrangements for the exhibit of foundry supplies, which will be a feature of the convention of the American Foundrymen's Association at Philadelphia in June, 1907. Committees will be appointed also to have charge of the entertainment of those who attend this convention.

The constitution of the Foundry Supply Association gives the following statement of the objects of the association and of the qualifications for membership:

The object of the association shall be to co-operate with the American Foundrymen's Association for the general betterment of the foundry trade, by the introduction of improved methods, machinery, &c., into foundries. To carry out this work to the best advantage the association shall meet at the annual convention of the American Foundrymen's Association and shall, whenever deemed advisable, hold an exhibition of foundry supplies and equipment in connection with the said convention. The association shall co-operate with the American Foundrymen's Association and the local foundrymen in the city where the annual convention is held in arranging for the entertainment features.

Any firm, corporation or individual manufacturing or dealing in foundry supplies and equipment or material used in the foundry business, who shall take part in the adoption of this constitution, shall upon payment of the initiation fee become a charter member of the association; and thereafter any such firm, corporation or individual may become a member upon application in writing to the Executive Committee, the approval of the application by the said committee, and by paying the initiation fee.

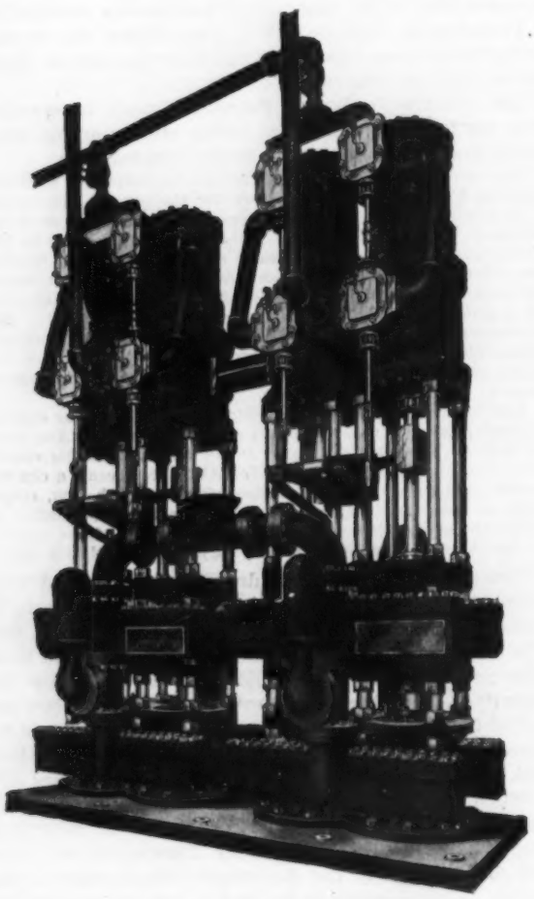
The officers are: the president, first and second vice-presidents, the secretary and the treasurer, who are to be elected annually. Six trustees are also provided for, two to be elected each year after the first year, the term to be three years. The officers and trustees constitute the Executive Committee. The secretary's salary is $500 and that of the treasurer is $50 a year. The treasurer is required to furnish a $4000 bond and the secretary a $1000 bond. The initiation fee is $25 and the annual dues $25, of which $5 is to be paid to the American Foundrymen's Association, so that each firm, corporation or individual belonging to the Foundry Supply Association will also hold membership in the American Foundrymen's Association. Each member is entitled to two representatives at the annual convention. For each additional representative at such convention a fee of $15 is to be paid to the treasurer. No firm or individual not a member of the association is permitted to exhibit at the annual convention.

It is a fact worthy of note, says Edward W. Parker of the United States Geological Survey, that the total increase in the production of coal in the United States in 1905 over 1904 was larger than the production of France in 1904, or of any other foreign country except Great Britain, Germany and Austria-Hungary, and was almost equal to the production of Austria-Hungary. The total production of this country last year was nearly 50 per cent. larger than that of Great Britain, which until 1899 was the leading coal producing country of the world, and was more than double that of Germany. Another interesting fact is that in each decade the output of the United States has been practically doubled.

The first electric train on the New York Central Railroad was run from High Bridge through the tunnel to the Grand Central Station September 30. It is expected that the regular electric service will be installed on November 10.

The Canton Duplex Elevator Pump.

A new type of vertical duplex elevator pump recently installed in the Wells Building, Milwaukee, Wis., by the Canton Pump Company, Canton, Ohio, is attracting considerable attention in the elevator trade. In all our large cities ground space has become so valuable that it is necessary to construct high buildings to secure anything like adequate returns. To make such a building of any use to the large number of people who occupy it the problem of quick transportation to the various floors is an important consideration. The sixteen-story Wells Building, in which the pumps illustrated have been installed, is one of the finest in the Northwest, and has a complete power plant in its basement which supplies heat, light and power not only to the Wells Building, but also to the



The Twin Duplex Vertical Compound Hydraulic Pumps Recently Designed and Built by the Canton Pump Company.

Pabst Office, Pfister Hotel, *Free Press* Building, Windsor Hotel and *Milwaukee Sentinel* Building.

The elevator pumps occupy a floor space of 6 x 12 ft. and their base is one solid casting weighing nearly 5 tons; as the illustration shows, there are two complete twin pumps, identical in construction, mounted on this base. Either pump can be operated independently of the other. It will be seen that the pumps are of duplex compound type. The pumps have 18-in. high pressure steam cylinders, 26-in. low pressure cylinders and 18-in. stroke with 6-in. hydraulic plungers. Each pump has a capacity of 250 gal. per min., working against a pressure of 900 to 1000 lb. per sq. in., with 120 lb. steam pressure in the steam cylinder, and 120 lb. water pressure at the suction. The boiler pressure is about 150 lb. The weight of the steam end is 14 tons, and the weight of the water end and stretchers about 14 tons. Each pump is capable of exerting a pressure of 1400 lb. to the square inch.

It is believed by the manufacturer that these are the largest hydraulic pumps of the duplex vertical type ever constructed. It is interesting to know that at the time this contract was secured other pump manufacturers predicted that the successful bidder would not be able to carry out the contract, and it is worthy of remark that the pumps were built and installed in time and that they are giving the purchasers entire satisfaction.

A Great Gas Producer Contract.

The largest single contract for gas producers ever given, it is claimed, has just been placed. The Indiana Steel Company has closed for 140 large gas producers with gas flues and Dyblie reversing valves to operate the 28 open hearth furnaces to be erected at Gary, Ind. For the past four months eight of the leading manufacturers in that line of business have been engaged in this contest because of its great importance, not only on account of the large amount of work involved, but principally on account of the standing to be obtained by the successful type.

A committee of engineers was appointed by the United States Steel Corporation to visit the various plants, investigate claims and note actual results. The first approach to a decision came when the committee visited the plant of the Lackawanna Steel Company at Buffalo, where several of the leading types of gas producers were seen in operation. It is stated that the open hearth furnaces at that plant, which are fired with gas from continuous gas producers having mechanical feeds, are now turning out more steel with less coal consumption than any other plant in the world. This had its effect on the committee and when the order was placed the award fell to the Morgan Construction Company, Worcester, Mass., represented in the contest by E. A. W. Jefferies, 40 Exchange place, New York City. This makes the fifth order for gas producers that the Illinois and Indiana steel companies have awarded the Morgan Construction Company.

This company has also obtained a remarkable recognition of the merit of its work in England and Europe, where about 100 Morgan continuous gas producers have been sold the past 12 months, the Morgan being the only American gas producer which has successfully invaded that field.

A New Course of Instruction at Pratt Institute.

The department of science and technology of Pratt Institute, Brooklyn, N. Y., this year offers a new course in machine construction intended primarily to train its graduates to fill positions as foremen and assistant superintendents in machine shops or in kindred manufacturing plants in which machine work is an operation of first importance. It is preferred that applicants for this course be men with some considerable previous experience in machine work, it being the idea to combine with their practical experience the theory underlying it. A good working knowledge of arithmetic is also required, and only those are desired whose ambition is to improve their condition and to that end are willing to devote their energies for the nine months required to complete the course. The machine shop of the institute has recently been added to, and the increased floor space and new equipment nearly double its capacity.

The course of study covers machine construction, tool making, lectures on machine shop practice, mechanical drawing, practical mathematics, foundry work and forging. A unique feature in the curriculum of the institute is the provision for developing in the students the ability to direct the work of others by giving each one practice at being a foreman, first over one or two of his classmates, and finally he is given a chance to lay out and direct the work of a larger number. In this way he is able to gain experience and confidence in handling men and in directing work, fortifying himself against the natural disinclination employers have for intrusting the responsibility of handling men to those who have never had actual experience.

It is reported that the new Austrian battleships will be of about 15,000 tons displacement, or 4000 tons more than that of the present standard ship.

The Anderson Automatic Float Valve.

An automatic float valve for controlling the water level in tanks or reservoirs when the supply is under either high or low pressure is made by the Golden-Anderson Valve Specialty Company, Pittsburgh, Pa., and is known as the Anderson—patent automatic float valve. Two special features of the valve are that it may be

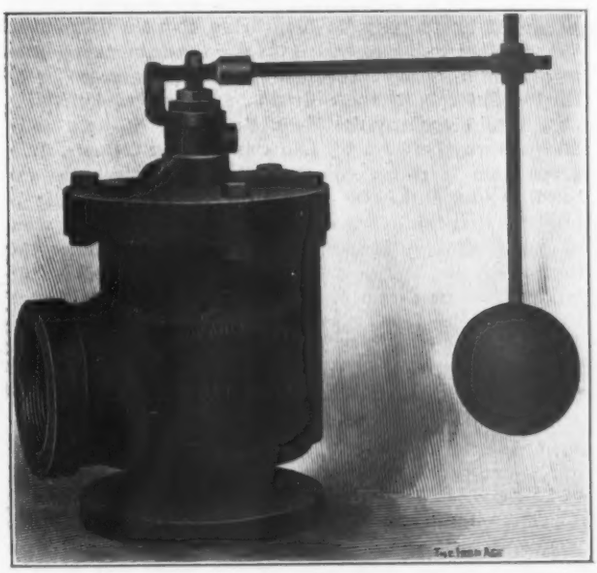


Fig. 1.—The Automatic Float Valve Made by the Golden-Anderson Valve Specialty Company, Pittsburgh, Pa.

instantly adjusted to operate quickly or slowly as desired, and that the valve is cushioned in opening and closing. Fig. 1 shows a general exterior view of the valve, from which it will be observed that the float may be swiveled to any required angle. The operation of the valve will be best understood from the sectional view given in Fig. 2.

Referring to the latter, the operation may be described as follows: The water enters under the valve or piston

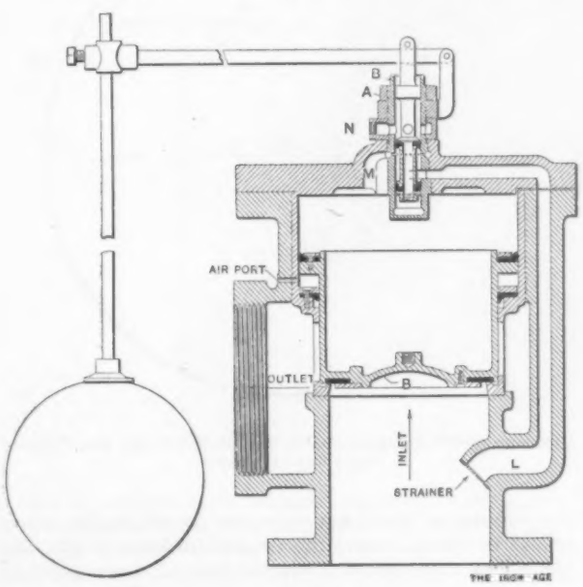


Fig. 2.—Section of the Anderson Automatic Float Valve.

B, as indicated by the arrow marked "inlet," and also passes through the ports L and M to the top of the valve. Owing to the greater area above the valve the valve is held closed normally, but when the lever is operated by the float the auxiliary valve B closes the port L, and opens a port through the auxiliary valve at N, relieving the pressure on the upper side of the valve. This pressure on the top of the valve being removed, the pressure under the valve forces it up, opening the outlet, and the water above the valve acts as a cushion while it is being forced out, and as the valve travels upward air is drawn in through the air ports in the side of the body beneath the flange at the upper part of the valve, which air acts as a cushion when the valve is closing.

The valves are made in angular or straightaway patterns in sizes of from 1½ to 14 in.

Recent Customs Decisions.

Duty on White Paints.

It was decided by the Board of United States General Appraisers September 29 that zinc white and enamel white paint are properly dutiable at the rate of 30 per cent. under the provision in the tariff law for paints, and not dutiable at the specific rates provided for zinc ground in oil. The case came before the customs tribunal in the form of a protest filed by J. A. & W. Bird & Co., New York. General Appraiser McClelland, who writes the decision for the board, says among other things:

We think it wholly immaterial to the issue whether the varnish, turpentine and drier, which are indisputably present with the oil in the paints as imported, were introduced during the grinding of the zinc oxide or subsequently thereto. The fact remains, and we so find, that in the condition imported the merchandise is not oxide of zinc ground in oil. It has advanced beyond that stage and is a finished liquid paint, ready for application with the brush. Classification must be based, not upon what the merchandise once was, but upon its condition at the time of importation. Assuming that at an earlier process of manufacture it was oxide of zinc ground in oil the fact remains that it was not such when imported, and we therefore hold that the merchandise is not dutiable at any of the rates specified in paragraph 57.

Duty on Zinc Ore.

Further testimony in the controversy regarding the rate of duty applicable to zinc ore was taken by the Board of United States General Appraisers September 27. Several hearings on the subject have been held, and at the conclusion of the hearing on the day named an adjournment was taken until November 15, at which time it is expected Dr. David T. Day of the United States Geological Survey will be present as a witness for the Government and the mine owners. The controversy lies between the domestic mine owners and the Treasury Department on the one side and the importers and smelters on the other. The Government and the miners contend that the ore should be assessed for duty at the rate of 20 per cent. under the provision in the tariff law for metallic mineral substances, whereas the smelters argue that the ore should be admitted as calamine free of duty, or else assessed at specific rates on the zinc actually contained in the ore.

The principal witnesses called on September 27 supported the contention of the mine owners. They included H. A. Wheeler, a mining engineer of St. Louis; J. W. Mixter of the Eads, Mixter & Heald Zinc Company, Knoxville, Tenn., and Axel O. Ihlsend, a mining expert of New York. The testimony was almost exclusively of a scientific character, and, as in past hearings, referred to the application of the word calamine to carbonate and silicate of zinc. The witnesses examined agreed that calamine is distinct from zinc ore. It developed that the interests involved in the controversy will not accept the forthcoming decision of the Board of Appraisers as final, and it is regarded as certain that the ore case will have a prolonged run in the Federal courts. The test litigation is in the name of the Kansas City Spelter Company, but the New Jersey Zinc Company and others are taking a direct interest in the question of the dutiable classification of the ore.

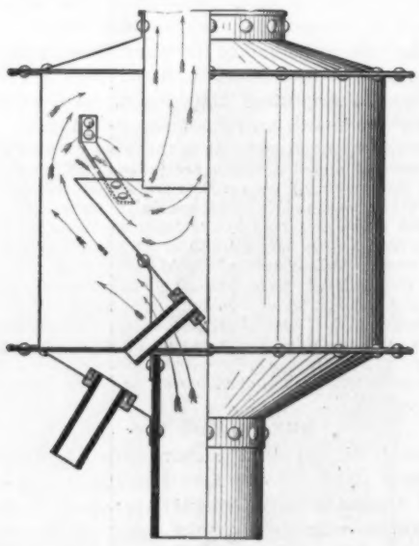
Pilling & Crane, Philadelphia, have issued a very neat chart, designed by L. S. Witherbee of Yale, 1906, the son of Frank S. Witherbee of Port Henry, N. Y. It shows the production of pig iron in the United States by decades from 1830 to 1905, and the per capita production for the same period.

The most effective means for developing an export trade in any commodity is to reduce the cost of production at home.

The Buffalo Improved Exhaust Head.

The removing of water and grease from waste steam, which is the function of an exhaust head, is of such importance that a head is now regarded as almost indispensable. Some interest, therefore, attaches to the improved exhaust head recently placed on the market by the Buffalo Forge Company, Buffalo, N. Y., and shown in the engraving. Its operation depends on the high inertia of the water or grease as compared with that of steam vapor, the water weighing approximately 1700 times as much, volume for volume.

The exhaust steam rising into the head strikes the inverted cone deflector, and the water and grease, by the changes in direction, are thrown to the outer shell,



The Improved Exhaust Head Manufactured by the Buffalo Forge Company.

where they find their way to the drip pipe. The steam, on account of its small weight per cubic foot, readily changes its direction of flow again and finds its way through the outlet openings to the outside air. It is claimed that the escaping vapor is devoid of all contents which would be injurious to neighboring roofs or pavements and that the result is attained without perceptibly increasing the back pressure upon the engine.

The shell is carefully constructed of heavy galvanized sheet iron, strongly riveted and soldered. The drip pipes from the deflector and to the outside air are held in place by clamp nuts, which avoids all possibility of their working loose or breaking off. All sizes and capacities are furnished, and pipe connections are provided to accommodate any requirements.

St. Louis Terminal Facilities.

Tentative plans contemplating the expenditure of more than $6,000,000 for the improvement of terminal railroad facilities in St. Louis have been developed by W. S. McChesney, Jr., president and general manager of the Terminal Association, and will be submitted for approval to the Board of Directors at the November meeting. St. Louis terminal facilities have been considered inadequate for a number of years past to the commercial demands of the growing city. With expansion in this direction it will be in a position to reach out into the rich Southwestern territory and develop its splendid resources. It is understood that much attention is to be given to improvement in team trackage. The association now has but 1123 car lengths of team tracks, and additions would be made which would materially improve the situation in the loading and unloading of freight promptly. The carrying out of the plans proposed would mean a practical doubling of team track facilities at all points and making them four times their present capacity at other points. Extensive additions to warehouse or freighthouse facilities are also contemplated.

To provide for the growth of the transfer of cars between St. Louis and East St. Louis it has been suggested that the Poplar street track of the Iron Mountain Railroad should be depressed and a second track provided to give the Terminal Association direct connection at that point with the Wiggins ferries. It is considered improbable that Mr. McChesney will favor the move recommended by Albert T. Perkins, the railroad expert employed by the city, to help bring about a solution of the terminal problem, which involved the construction of a cantilever bridge at the foot of Poplar street to be used exclusively by the railroads, and suggested that the city should acquire the Eads Bridge to be used as a free highway between St. Louis and East St. Louis. This proposition is rather complicated and involves the expenditure of $8,000,000 on the cantilever bridge. It is probable that the improvements will be made with a view of using the two bridges, which are already under the control of the Terminal Association, with possibly the construction of an aerial ferry, such as is now in use at Duluth, Minn.

Repairing a Cracked Cylinder Head.

An interesting manner of repairing a cracked cylinder head, 4 ft. in diameter, with the use of Smooth-On elastic cement, made by the Smooth-On Mfg. Company, Jersey City, N. J., is described by the engineer who did the work as follows:

While the cylinder was hot a partial vacuum was created in it, and Smooth-On elastic cement was painted over the crack. The vacuum drew the cement in, and this operation was continued until the crack would take up no more cement. Holes were then drilled and tapped in the end of the crack, as shown at D and E in the illustration, and bolts were put in to prevent a further extension of the crack. The patch was cut as represented. The crack was then painted with Smooth-On, and the patch laid in position. Then it was carefully removed.

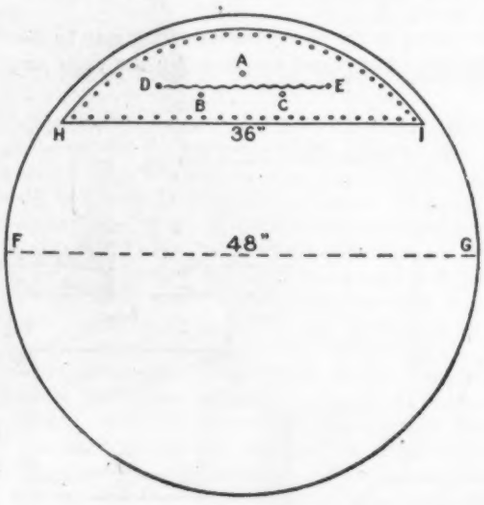


Diagram Showing the Location of the Crack in the Cylinder Head and the Patch.

The imprint of the crack was now shown on the under side of the patch, where the Smooth-On stuck to it. The patch was then dished along the line of the imprint to make a recess to hold sufficient cement. The plate was then warmed and a compound composed of Smooth-On iron cement No. 1 and Smooth-On elastic cement, mixed half and half, was applied to the warm plate with a small trowel, making a thin even coating. Then the patch was laid in position. The three center bolts, A, B and C, nearest the crack were brought up just taut and the outside bolts were made tight, and, lastly, the three center bolts were tightened as much as possible, which forced the cement into the crack. When steam was turned on the crack was found to be tight.

A Billings & Spencer Double Triple-Geared Trimming Press.

The Billings & Spencer Company, Hartford, Conn., has built a double triple-geared trimming press for use in trimming the longest and heaviest automobile four-throw crankshafts and axles, its capacity being a piece 5 ft. long and even longer when required. The machine is so constructed that both crankshafts act absolutely together, as will be seen in the accompanying illustrations. Fig. 1 is a general view of the press, and Figs. 2 and 3 are front and side elevations showing the mechanism.

The driving pulley, which also acts as the balance wheel, is mounted upon the back crankshaft, running idle, and integral with it is the balance wheel pinion A, meshing with the gear B, which is mounted on the central or pinion shaft and carries a Billings & Spencer plate clutch, which has been described in detail in *The Iron Age*. Both pinion A and gear B run continuously and idle until the clutch is tripped by the operator, engaging the central shaft. At the outer end of this shaft and keyed to it is a long pinion, C, which meshes with the gears D and E, one on each crankshaft, thus causing the two shafts to operate in unison. This is necessary, because in trimming a long crankshaft or axle the machine must act to keep the dies working absolutely parallel one to the other, thereby overcoming any cramping strain that might occur in a single press doing the same class of work. The double press is lighter than the single press for the same work and is so compact as to permit its erection in the space commonly allotted between drop hammers, requiring practically no more room than a single press, as it is larger only in the dimension of its depth, the width being the same as that of a single press. The top of the frame is made flat, permitting the easy application of a motor drive direct to the balance wheel, which would in that case be cut as a gear.

The press is a very powerful one. The ratio of gearing is 15 to 1, and the crankshaft makes 20 rev. per min. The machine weighs 36,000 lb., and the 36-in. flywheel weighs 1500 lb. The diameter of the crankshaft in the bearings is 5 in. The distance between the uprights is 27 in., and the seat for the dies in the bedplate is 22 x 54 in. It will be seen that overhanging dies will permit of work well in excess of 60 in. The stroke of the ram is 5 in., and its vertical adjustment 5 in. The machine has been installed in the automobile works of the Pope Mfg. Company, Hartford.

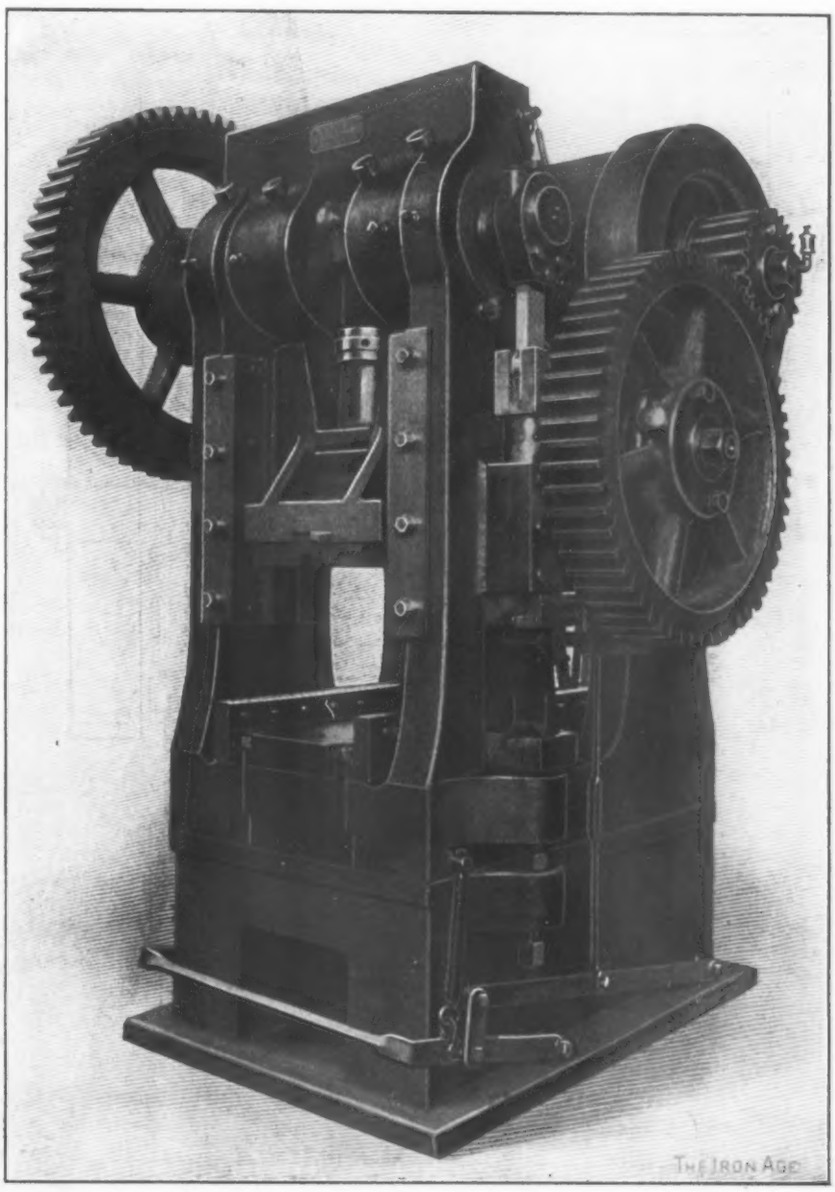


Fig. 1.—A Double Triple-Geared Trimming Press Built by the Billings & Spencer Company, Hartford, Conn.

James A. Moore, Seattle, Wash., has purchased the Irondale Furnace and other property of the Pacific Steel Company, at Irondale, Wash., for $40,000. Besides the furnace the property consists of 320 acres of ground, which has ½ mile frontage on Townsend Bay. Mr. Moore and associates will make repairs to the furnace at a cost of over $100,000, including the installation of a number

of charcoal kilns equipped for securing by-products from the timber. As soon as repairs have been completed the furnace will be put in blast, turning out 60 tons of high grade charcoal iron per day, which will be largely used in the manufacture of car wheels in connection with the new car plant to be erected in Seattle.

The Susquehanna Iron & Steel Company.

A plan of reorganization of the Susquehanna Iron & Steel Company, which has been in the hands of receivers for the past three years, is being mailed to the stockholders this week by a stockholders' committee, consisting of Charles A. Porter, James G. Lindsay, John A. Bausman, C. W. Bitner, and C. R. Strickler. A new corporation is proposed under the name of the Susquehanna Iron Products Company, with $750,000 cumulative preferred stock, $2,000,000 common stock and $300,000 bonds. The preferred stock is designed to secure an equivalent amount of new capital, as it will be subscribed for at par. Of the common stock to the extent of $1,500,000 is to be applied to the acquisition of the outstanding 300,000 shares at $5 per share of the capital stock of the Susquehanna Iron & Steel Company; $375,000 will be given as a bonus to subscribers for the $750,000 preferred stock at the rate of one share of common for every two shares of preferred; the balance, $125,000, will be retained in the treasury.

For the purpose of determining a basis for reorganization and estimating the earning capacity of the various plants an examination of the properties was made by a Pittsburgh expert, whose report is summarized as follows:

PRESENT CONDITIONS.

Blast Furnaces.—Not modern, but in serviceable condition; could be operated at once. Should earn $100,000 per year. At present no income.

Bar Mills.—Not modern, but in serviceable condition. Should earn with improved methods introduced at present $100,000 per year.

Skelp Mills.—Not modern, and handicapped by the isolated condition of the York mill, but in serviceable condition. Should earn $100,000 per year.

Pipe Mill.—Thoroughly modern, but operated under the disadvantage of insufficient working capital, and only on single turn. Should earn $150,000 per year.

IMPROVED CONDITIONS.

Blast Furnaces.—Concentration of both furnaces in one plant would effect a saving of $30,000 in freight and $25,000 in operating expenses, not taking into consideration at this time that the proportion of fuel in a modern furnace should be considerably lower than the figure given above. A reduction of only one-fifth of a ton of coke required per ton of iron would represent a saving of $45,000 a year. Through judicious sale of present furnace properties these improvements can be made at the proper time without the actual expenditure of any additional capital.

Bar Mills.—The further utilization of the modern methods

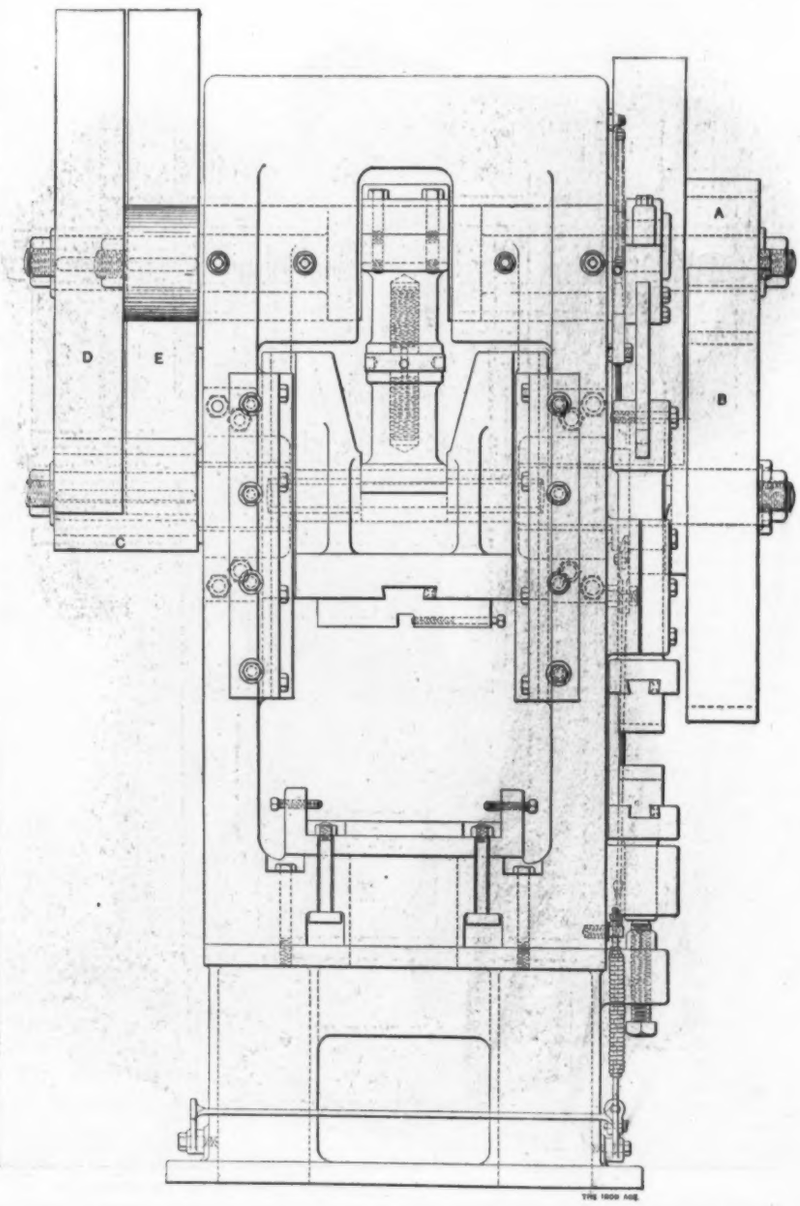


Fig. 2.—Front Elevation of the New Billings & Spencer Double Triple-Geared Trimming Press.

introduced lately would greatly increase the production and thereby the earning capacity of these mills. Practically no money would have to be expended and the ratio of decrease would depend largely upon the market requirements.

Skelp Mills.—The sale of the real estate property at York would cover the cost of removal and of all necessary improvements of the large skelp mill. An additional expenditure of $13,000 would make the Columbia mill equal in economical operation and output to any skelp mill of its scope operated on iron. The output would be doubled and the earning capacity of both mills would be brought to at least $240,000 per year.

Pipe Mills.—If operated on double turn the production of the pipe mills would be at least doubled. No expenditure is required to obtain this result. By operating these mills for long runs on one size the output would be again materially increased. Additional working capital would be required to effect this end. By entering the manufacture of boiler tubes, &c., premium prices involving great profits could be obtained. A conservative estimate would place the earning capacity of the pipe mills under such conditions at $350,000 per year.

It is estimated that the pipe mill can produce 200 tons of finished pipe a day, at a cost of about $40 a ton, which would require $200,000 a month for working capital, and it is considered that the pipe mill should carry merchandise in stock of at least $300,000. The annual charges under the proposed arrangements are $18,000 interest on $300,000 bonds, and $52,500 as 7 per cent. dividend on the $750,000 of preferred stock. The net annual profit on the $2,000,000 of common stock, according to the expert's report, would be $279,500, or about 14 per cent.

The Reorganization Committee requests stockholders to sign the agreement of reorganization and deliver their certificates to the Commonwealth Title Insurance & Trust Company of Philadelphia. Frederick H. Clarke, 32 Nassau street, New York, as attorney for the Reorganization Committee, prepared the proposed plan.

Contracts for 48 motors to be used in operating rail mill tables, punches, shears, straightening machinery and other small tools that will be used in the finishing department of the new rail mill of the Indiana Steel Company at Gary, Ind., have been awarded to the Westinghouse Electric & Mfg. Company, Pittsburgh, Pa. The motors range in size from 25 to 250 hp, and are of alternating and direct current types.

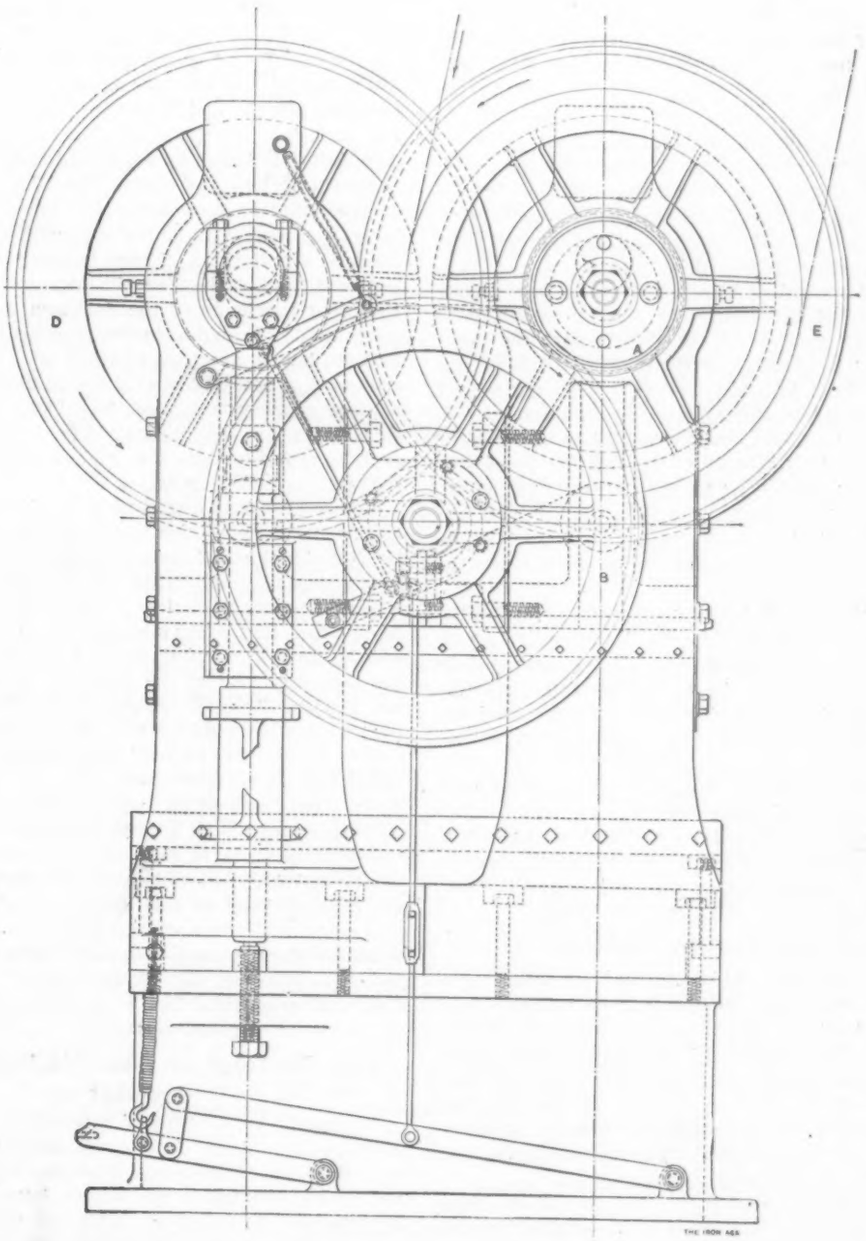


Fig. 3.—Side Elevation of the New Billings & Spencer Double Triple-Geared Trimming Press.

The imports of British pig iron, cast iron and steel into Belgium in the first seven months of this year were 112,500 tons, as compared with 29,000 tons to July 31, 1905, and 33,000 tons in the corresponding period of 1904. The imports into Belgium from all quarters to July 31, this year, were 376,500 tons, as compared with 255,000 tons to July 31, 1905, and 183,000 tons to July 31, 1904.

The National Supply and Machinery Dealers' Association.

Special Meeting Held at Detroit September 26, Being Preceded by Executive Committee Meetings of the American Supply and Machinery Manufacturers' Association and the Southern Supply and Machinery Dealers' Association.

As was generally expected, the meetings of the leading members of the supply and machinery trades held at Detroit, Mich., last week proved of considerable importance. Considering the supply section separately, the chief interest lies in the fact that the wheels were set in motion for a gathering next spring of all the associations in this branch of industry from both the manufacturing and distributing standpoints. The keynotes sounded were co-operation and reciprocity, and every indication points toward active co-operation, with, of course, the attending reciprocal benefits.

The machinery dealers had a most enthusiastic meeting which resulted in action that can scarcely fail to accomplish much good along the lines sought for many months past. The meeting of the National Supply and Machinery Dealers' Association was, in fact, entirely of interest to that portion of its membership concerned in the marketing of machine tools. The object of holding the meeting at this time was to anticipate the meeting of the National Machine Tool Builders' Association, which is to be held in New York commencing October 9, and thus enable the dealers to fix upon a plan of action whereby their still unaccomplished purposes might be attained.

A great deal of credit is due to the officers and councillors of all the associations for the large and representative attendance and also for the interest and enthusiasm displayed by the members throughout the proceedings. Secretary-Treasurer Anderson of the National Dealers' Association performed an especially creditable task in arranging for the presentation of three papers upon most timely subjects, prepared by members ably fitted for the work. These served as promoters for animated discussions, resulting in a well defined method of procedure calculated to attain a friendly adjustment of the differences existing between the dealers and the machine tool manufacturers whom they represent.

The Executive Committee Meetings.

On Monday morning, September 24, the members of the executive committees of the National Supply and Machinery Dealers' Association and the American Supply and Machinery Manufacturers' Association, and President J. H. Riechman of the Southern Supply and Machinery Dealers' Association arrived at the Cadillac Hotel, and immediately proceeded with a series of executive meetings and conferences which lasted throughout the day and the one following.

After reviewing thoroughly the positions of the three organizations from the viewpoints of their different policies, the representatives realized that the work of all the associations would be continually hampered unless the obstacles standing in the way of perfect co-operation were removed. The first step in this direction was taken by the manifestation of a mutual desire to have all questions at variance with the fixed policy of any of the associations adjusted in joint or simultaneous conventions of the members of the organizations. This was accomplished by the tacit understanding that the annual conventions of the three bodies be held at the same time and place next spring.

According to the constitution of the National Supply and Machinery Dealers' Association its annual meeting should be held on the second Wednesday in May. This organization thereby becomes the central figure in the situation and necessarily fixes the date. It was decided by this association to extend an invitation to the Southern Dealers' Association and the American Manufacturers' Association, and also the National Machine Tool Builders' Association to hold their meetings next spring on the same date and at any place determined upon by the participating organizations. The ultimate success of the entire project depends upon the acquiescence of the Southern Supply and Machinery Dealers' Association, as the American Supply and Machinery Manufacturers' Association is bound by its constitution to meet with the Southern dealers. Of course, should the plan fail, so far as the Southern Association is concerned, the manufacturers can meet with both the Southern and the National Dealers' associations. There is every reason to believe, however, that such a contingency will be avoided, for President Riechman of the Southern Association is very sanguine of succeeding in bringing his members to share his own hearty approval of the plan. The disposition of the machine tool builders cannot be determined as yet, as no one representing them has had an opportunity to comment upon the project. The invitation will, however, be presented officially, and at the coming New York convention of the association.

Other questions discussed at the Executive Committee meetings were purely of a routine nature, affecting only the individual associations directly. A gratifying feature of the situation, indicating how harmoniously the supply manufacturers and dealers are working together, is found in the fact that every member of the American Supply and Machinery Manufacturers' Association is enrolled on the Honorary List of the Southern Supply and Machinery Dealers' Association, and that not a complaint was filed against any member of the former association by either of the two dealers' associations. It will be recalled that at St. Louis last spring the Southern Dealers' Association resumed its Honorary List, making it obligatory upon any manufacturer seeking to be admitted to membership on it to first gain admittance to the Manufacturers' Association, but not obligating itself to retain any manufacturer on this list whose selling policy is not in accord with that of the Dealers' Association. The Southern dealers are in fact aiding very materially in the upbuilding of the Manufacturers' Association, the membership of which has increased 50 per cent. since the St. Louis meeting last spring.

The Meeting of the National Dealers' Association.

Promptly on Wednesday morning 30 of the foremost American machinery merchants, journeying from points as widely separated as San Francisco and Boston, opened the special meeting of the National Supply and Machinery Dealers' Association. After the dispatch of routine business President E. E. Strong paid a touching tribute to one who since the last meeting of the association had passed away, and the members bowed their heads in silent reverence to the memory of Frank Chandler, so well known in the trade as senior member of the firm of Chandler & Farquhar, Boston.

The courtesy of the floor was extended to Samuel L. Moyer, president of the American Supply and Machinery Manufacturers' Association; F. D. Mitchell, its secretary-treasurer, and J. A. Riechman, president of the Southern Supply and Machinery Dealers' Association. After a pleasant introduction and welcome by President E. E. Strong, each spoke a few words in behalf of his association, extending its compliments and pledging co-operation in the work which all of the organizations are striving to accomplish.

Resolution Endorsing the Manufacturers' Association.

George Puchta of the Queen City Supply Company, Cincinnati, then made one of his delightfully characteris-

tic speeches, making every one feel that the life of even a supply dealer or manufacturer was worth living, closing with an earnest plea for the strengthening of the fraternal ties binding the members of the three associations and offering the following resolution, which was unanimously adopted:

It being evident that the American Supply and Machinery Manufacturers' Association and the National Supply and Machinery Dealers' Association are working toward the same end in striving to bring about more kindly feelings and better results in their various lines, therefore be it

Resolved, That our association shall earnestly indorse the objects and aims of the American Supply and Machinery Manufacturers' Association, and in every manner possible assist it to increase its membership.

This resolution is similar to one previously adopted by the Southern Supply and Machinery Dealers' Association, thus placing the manufacturers in the happy position of having the good will and support of the organized dealers throughout the country.

President Moyer, in receiving this vote of confidence in behalf of the manufacturers, seconded Mr. Puchta's appeal for co-operation and harmony, stating that the members of his association were anxious to meet the dealers who distributed their products in every honest endeavor to best serve the consumer, who is the all-important factor and whose interests both dealer and manufacturer should always keep in view. He said that ruinous competition between dealers and between manufacturers does not benefit the consumer, and is especially distasteful to the consumer who seeks the highest quality obtainable in the goods he purchases. To maintain a high standard in the quality of his product the manufacturer cannot fall to a low method of turning out or distributing his goods. With the assistance of the dealers of the country, said he, united to conduct their business on the high plane of fairness to all, the manufacturer will receive substantial aid in his effort to reach the consumer honestly demanding high quality, and that consumer may then feel assured that he can always obtain the character of goods he is seeking.

The Machinery Committee.

F. H. Brown of the Brown & Zortman Machinery Company, Pittsburgh, Pa., who is chairman of the Machinery Committee, submitted a report in which he related the efforts which have been made and are still being continued with a view of obtaining from machine tool builders the correction of certain matters which the dealers contend are not entirely just and equitable as they now exist. He supplemented his report by the presentation of the following paper:

Exclusive Territory and Protection Therein.

The dealer's position in the distribution of merchandise is just as important a part as the foundry, the machine shop or the engineer. Following out the modern tendency of specializing work places the sale of machinery in a distinct department by itself. Almost any bright, intelligent man, gifted with a fair amount of talk, can sell hardware, furniture, groceries, drugs or the thousand and one other things which constitute the daily demand of the average human being; but machinery occupies a class by itself, requiring not only intelligence of a high degree, but the special powers of bringing a customer up to the psychological moment when the order is actually placed.

I do not contend that no machinery can be sold except through a dealer, for we all know that there are some very successful machine tool manufacturers who market their own product and will not accept orders from dealers except at the same prices at which they sell the customer. These cases are rare, however, and apply only to specialties that can no doubt be handled to better advantage by the manufacturers in this manner.

The dealer is a specialist. He employs men whom he has trained to become good salesmen. He carefully watches the conditions of trade in his territory, and orders stock after years of experience as to the demands of his locality. He maintains showrooms and warehouses. He encourages new enterprises which may add to his possibility of business and he is always on the alert for ways and means to enlarge his sales and firmly establish his lines. He is, in fact, a professor in selling. It is his thought day and night, sleeping or waking.

Most of the dealers, or I might say all of them, have built up their business by representing some lines of machines exclusively in their respective territories, and how many of us, through our association with manufacturers, have helped to build up their business as our own has grown? Many dealers' names are so closely associated with the manufacturers they represent that the names of one suggest the other.

This allying of dealer to manufacturer brings up the topic which I have before me, namely:

EXCLUSIVE SALES TERRITORY AND PROTECTION.

No dealer can successfully handle a line without his exclusive territory and absolute protection therein. I hope it will soon be such an established fact that no machine tool manufacturer will attempt to market his product except through some appointed agent.

To get exclusive territory with its protection we should be bound to the manufacturer by a contract, fair, just and equitable to both parties; a contract uniform in all its clauses and applicable to every kind of machine tool. Many of us have contracts with manufacturers at the present time, but there are clauses in them which are unsatisfactory. It is suggested that a committee be appointed to take this matter under careful consideration and draw up a contract agreeable to us all.

Conditions have not been satisfactory in the past where no contract was in force. We have taken up lines unknown in our locality, pushed them to the best of our ability, and upon a few days' notice have had them taken away from us and our work of years go for nothing. I must admit that we must look at this matter from the standpoint of the manufacturer, and realize that if he puts his trust in a dealer he then expects the dealer to do his share to push the line. A few years ago it was quite the custom for some dealers to tie up every new line as it came out, with the purpose of keeping some competitor from getting hold of it. This of course is not fair to the manufacturer, and I am happy to say is not followed to-day.

A contract should place all dealers on the same footing and could be so drawn as to regulate such cases as where machines go into adjoining territory, and define the relations between dealers themselves as well as between dealers and manufacturers.

The consolidations effected in the past few years have placed purchasing departments in one city, where goods may be ordered for delivery at destinations in territory controlled by other dealers. These conditions must be carefully covered by this contract.

To sum up the important clauses, the contract should define:

1. Territory, exclusively controlled.
2. Referring all business, orders, inquiries for machines or parts to dealer, and in no case making quotations direct.
3. Discounts allowed from a re-sale price.
4. Terms of settlement.
5. Prices at which stock orders may be entered and filled.
6. Change of prices to have at least 30 days' notice.
7. No stock orders to be accepted by manufacturers, except at new prices, after notice of advance has been made.
8. Stock orders not to exceed more than 20 per cent. of one lot.
9. Defining relations between dealers jointly handling same goods.
10. Orders taken in one territory for delivery in another to be entered only after a mutual agreement with interested parties.
11. Furnishing advertising matter to represent the line properly.
12. Guarantee machines free from defects in material and workmanship.
13. At least 60 or 90 days' notice necessary to terminate contract.
14. In case of termination, all stock in hands of dealers to be sold back to manufacturer on an equitable basis.

Action Taken on the Machinery Committee's Report.

In submitting his report and reading the foregoing paper Mr. Brown opened the way for the liveliest discussions of the meeting. He covered the very points which are closest to the interests of the machine tool merchants to-day. As the subject was traversed it became more and more apparent that the dealers had heretofore been using the wrong avenue in seeking to arrive at more liberal treatment from the hands of the machine tool builder. It was therefore decided that instead of presenting their case to the National Machine Tool Builders' Association directly, they take up each type of tool separately with the members of the Machine Tool Builders' Association constituting the committee having that particular tool in charge. In this manner cognizance is taken of the fact that varying conditions exist with the different sections of the industry, and each should be handled along its own peculiar lines, just as the machine tool builders handle these matters among themselves. It was decided that the committee shall have the power to increase its membership at will, so that as large or rep-

resentative a delegation of the dealers as may be necessary to present their case from all sections of the country may be available when the machine tool builders are visited.

It is the opinion of the dealers that the standard commissions for selling machine tools should be increased to 20 per cent. for small articles amounting to $100 in value or less, and that on heavier lines the differential should amount to 12½ per cent. instead of the present 10 per cent.

The committee was given full scope in the matter of formulating a standard form of contract as suggested in Mr. Brown's paper, the suggestion receiving the hearty indorsement of the association.

A perusal of the proposed clauses to be covered by the contract as contained in Mr. Brown's paper shows, in fact, that it covers all of the points on which the dealers hope to obtain more liberal treatment from the manufacturers. Practically each of the clauses, it will be seen, covers a subject of vital importance to the furtherance of the best interests of both parties concerned. One point of special importance is covered in clause No. 6. The changing of prices by the manufacturer without previous notice to the dealer, it will be seen, may easily cause the latter great inconvenience and in some cases actual loss. If the dealer has submitted quotations on a large equipment, which must go through the long drawn out red tape of the large corporations before even the appropriation of the necessary funds has been granted, a sudden advance in prices may cause serious embarrassment and ofttimes upset the entire transaction, all of which might have been avoided had it been possible for the dealer to embody a 30-day clause in his quotations. That no advantage of this clause could be taken by the dealer in the way of loading stock orders upon the manufacturer is shown in clause No. 7. Another clause of much importance to both the dealer and the manufacturer is No. 13. It is claimed that there have been cases in which the contract has been terminated so abruptly that the dealers have been prevented from reaping the benefits of months of costly labor which bore fruit after the severing of relations between the manufacturer and merchant.

A paper presented by Henry Prentiss of the Prentiss Tool & Supply Company, New York, was very enthusiastically received, and the various phases of his topic, which he presented so admirably and fairly, were repeatedly applauded by the members. Mr. Prentiss spoke as follows:

The Increased Cost of Selling Machinery.

I will take up first the increased cost of selling machinery. What constitutes the selling cost?

The principal items are interest on capital invested, taxes and insurance, rental, salaries, traveling expense, handling expense, including cartage, loss and damage; advertising expense, including catalogues, circulars, &c.; telephone and telegraph charges, stationery and postage, office equipment, bad debts. It is our common experience that these various items of expense have grown materially during the past few years; this increase has been constant, even though our sales have not proportionately grown. Let us consider these items in order.

Under normal conditions the dealer must be able to make quick deliveries, which require larger stocks, and the active competition necessitates elastic terms of payment. These, together with increased operating expenses, which are always payable in cash, call for a larger invested capital, and in consequence a larger interest account. This also involves a corresponding increase in taxes and insurance. This rule also applies to rentals as larger stocks require more room, hence more expense. Under present conditions it is imperative that every successful dealer shall have a large, experienced and efficient corps of salesmen. Manufacturers of desirable selling lines of machine tools compel their selling agents to cover the territory assigned them systematically and intelligently. To do this is costly, both in the matter of salesmen and traveling expenses. A few years ago an inquiry could be answered by mail with a reasonable expectation that an order would follow. Now every important inquiry must be assigned to a competent salesman, who must give his whole attention to it until the matter is closed. This involves added expense, so that a business of sufficient volume to be profitable needs the services of a number of salesmen.

SPECIAL EXPENSES NECESSARY.

It is also necessary to spend time and money in working up business independently of inquiries that may reach the dealer through the mail or by personal call from the inquirer. Because of this, advertising expenses, which include the cost of catalogues, circulars, &c., are constantly increasing and necessarily so. Our patrons are becoming more and more alive to their needs and what will supply them, and if we do not acquaint them continuously with our ability to serve them they go elsewhere to make their purchases. We must therefore supplement our salesmen's efforts not only by the distribution of illustrative and descriptive matter in the shape of catalogues and circulars, but also through the advertising columns of the principal trade papers.

Handling expenses, including cartage, loss and damage, are growing disproportionately to the increased volume of business; loss and damage items are more frequent than formerly. It does seem as if the transportation companies, latterly, have become less careful in handling shipments. The outcome is increased expense to the dealer. These items, directly and indirectly, aggregate a large amount in a year's business.

Telegraph and telephone charges, postage and stationery and office equipment, including salaries, require largely increased outlays yearly. We must have up-to-date methods and equipment for transacting our business. The item of bad debts must not be overlooked. We all have losses of this kind. It sometimes happens that we go for an extended period without any bad debts, and begin to hope that these unpleasant experiences are done with, but alas! we find this is not so. Loss after loss will strike us, until the general average is more than maintained. This experience teaches us that we must set aside monthly a considerable amount relative to our net profits to offset this loss.

THE EXPENSE ACCOUNT GROWING.

There are many other items of expense which I have not mentioned here that during a whole year total no inconsiderable amount. No doubt it is the experience of all our members that the expense account has caused more continuous and perplexing thought than all other matters combined that require attention. We all wish to conduct our business on broad and liberal lines, to have every one associated with us contented and well satisfied, yet we feel that it is only just that we should get a fair return upon the capital invested and reasonable compensation for our work. The dealer is certainly a hard worker and has long hours, whether his efforts meet with success or failure. The expense account is yearly growing. It is true that the volume of business is also increasing, but not in the same proportion. How shall we successfully cope with this situation? What is our remedy? Is it not to present this whole matter to the manufacturers whom we represent, so that they will see the necessity of readjusting the resale prices to afford us a larger selling commission, sufficient to protect our reasonable expenses and leave an adequate amount to reimburse us for the capital invested and trained and experienced service rendered?

We are largely to blame for present conditions. We have gone along from year to year allowing our expenses to mount up, while our commissions have been shrinking. Without looking into this matter we blindly assumed that the increased charges were to be met by increased sales, failing to realize that there must be an increased commission as well. We now have our eyes open. Let us take such action, individually and collectively, not hastily but wisely, as will afford us a larger percentage on our gross sales. It is true business is now very good and is likely to continue good for some time in the future. We must, however, look out for the lean years which are sure to come and be prepared for them.

THE INTEREST OF THE MACHINERY MANUFACTURER IN A LIBERAL POLICY TOWARD THE DEALER.

No doubt every successful manufacturer of machine tools will admit that this interest is vital and most important. Why? Because the dealer is almost indispensable to the success of the manufacturer. The latter finds that to supply a modern shop equipment, with competent heads and skillful workmen in the various departments to design, perfect and prepare for the market a line of machine tools to meet the constantly changing and more onerous conditions, and carry a sufficient stock to meet reasonable requirements at short notice, together with the multifarious calls which the manufacturer has to consider and dispose of, taxes his time and resources to such a degree as to unfit him, if otherwise competent, to successfully master the diverse and difficult problems involved in marketing his product. It was not so long ago that the dealer's relation to the manufacturer was quite different from what it is at present. Then the manufacturer consigned his stock, and when a sale was made waited until the dealer was paid for his remittance. Now the dealer must carry a representative stock, guarantee a satisfactory amount of sales yearly and pay promptly for all purchases, whether sold or not. In other words, the dealer's relation to the manufacturer has changed from an agent sell-

ing on commission to an outright buyer, thus fulfilling all the conditions of a merchant.

Is it not reasonable that this changed relation should command a larger return?

This new relation is helpful to the manufacturer in many ways, a few of which I will mention.

The dealer now carries the bulk of the manufactured stock on hand, pays regularly and promptly in appreciable amounts; keeps in touch with the buying public and is able to give the manufacturer many valuable and necessary pointers, which otherwise would be difficult and expensive to acquire. I believe the intelligent manufacturer fully appreciates all of these advantages and is willing to give the dealer an adequate return, but we cannot expect him to take the initiative in this matter. I am pleased to state that the manufacturers for whom our company has been so fortunate as to be the selling agents for several years past have been in the main just and liberal in their treatment of us. If the commissions allowed have not been so large as we needed it has not been because of their unwillingness to increase same, but owing to competitive conditions which required organized and harmonious action on the part of all competing lines to remedy.

It seems to me that the plan outlined at the meeting of the National Machine Tool Builders' Association, held at Atlantic City in May last, as embodied in its official report, is fair and reasonable, and if carried out would settle this vexed question in a most satisfactory manner. I had thought, until I read this report, that the manufacturers were not in sympathy with the dealers' ideas as to what action should be taken, but were quite antagonistic, but after reading the official report mentioned I must say that, in view of the complicated situation and the difficulty of straightening it out at such a gathering, I think their attitude and action were all we could expect at that time. Is it not reasonable that they should wish to know the true conditions, what will remedy the troubles complained of, and how this can be effected? Having this knowledge, they will certainly be glad to take the necessary action, providing they can feel assured that this will not seriously jeopardize their interests. We are perhaps better posted than the manufacturers as to what changes can wisely be made in the resale prices. This knowledge makes us confident that a readjustment is feasible which will prove satisfactory to all interested parties. Let us not forget that the manufacturer and dealer are equally necessary to each other, and that their interests are mutual and identical. United we stand, divided we fall. We must be just toward them, which means that we will act in accordance with our highest sense of what is right; thus doing, we may be sure that they will respond in the same spirit, and that the outcome will bring prosperity and contentment to us all.

Another paper meriting the praise of the members and which was very ably interspersed with extemporaneous additions by its author, C. A. Clarke of Hill, Clarke & Co., Boston, called forth a number of short speeches of approval at its conclusion. It was in part as follows, and was on the following subject:

What Can the Manufacturer Do to Aid the Dealer in Distributing His Product?

Whenever my mind is occupied with the subject I think of perhaps half a dozen different ways in which the manufacturer can help the merchant, dealer or agent to dispose of his product, but while my mind may be occupied for a few minutes with several different ways in which the manufacturer can help, I always find myself dwelling upon one only important way in which the manufacturer can effectively help his merchant, dealer or agent to sell his product.

Many of you may think that liberal advertising, advertising in trade papers, with the agent's name in large type, is the most important way, or, combined with advertisements in trade papers, liberal distribution of circulars through the mail, with the agent's name in prominent type on each circular. This advertising, this method of publicity, may seem to you the best and only way to help make sales. Some of you may prefer to have the manufacturer send practical men into your territory to do missionary work, visit customers with your salesmen, and in this way help make sales. Others of you may prefer to have a comparatively low price on the manufacturer's product, with a good, large discount for yourself, so that you can afford to spend time and money in marketing the product. These various methods by themselves, or combined, are generally looked upon as the essentials to give publicity to any line of goods and as an assistance in making sales, but to my mind these various methods are only slight helps and a slight assistance, when combined with the essential and most important help that manufacturers should give to their merchants, dealers and agents.

THE WAY TO CREATE A DEMAND FOR A PRODUCT.

I believe there is only one correct way in which the manufacturer can create demand, continued demand, for his product.

This way, the best way, is for each manufacturer to aim to produce the highest quality of product, the best in design, best in material, and best in workmanship. A thoroughly good machine, good in design, good in material and good in workmanship, will sell readily, will sell quickly on the floor of any machinery merchant without any advertising, the machine itself being a striking advertisement, and each machine that is sold will be an every day advertisement, bringing in new orders.

As an illustration of this, I can cite a case where a comparatively new manufacturer placed a machine for inspection and demonstration in a very large plant, where it had never been known before, with the result that within two years 125 machines were purchased. It was of exceptional quality.

High quality should not only be the aim of the manufacturer for his own benefit or for the benefit of his dealers, but each manufacturer should consider it his duty not only to aim at the best he knows how, but to strive to attain perfection of others who are doing better and finer work. I think that the natural tendency of machinery manufacturers is to strive toward further development of their particular lines. This striving may be self-interest, but many manufacturers I know are striving for high quality through their ambition to make the best. Everything in the mechanical world, all manufactures of iron, steel and other metals depend for their usefulness upon the accuracy and high quality of machine tools. Machine tools are the foundations of everything else in machinery, and while it is not so essential that the manufacturer of clay working machinery should aim at very great perfection, it is more and more the duty of the machine tool manufacturer to strive for the highest grade of excellence; in fact, the machinery manufacturer should never be satisfied and should always aim at an excellence just beyond his reach. This may seem to you a visionary view of a subject that has been brought up as a business proposition, but if I could put before you one of the Brown & Sharpe milling machines built in the year 1873 and place beside it one of the machines that the Brown & Sharpe Mfg. Company is building this year you would realize that the present product could not have been imagined by the most farseeing inventor in 1873.

Machine tools, more than in any other class of machinery, are in a constant process of development. They are being improved both in design and workmanship, and I am constantly telling our manufacturers to give us the best product they know how. Sometimes I am told that the price will be too high, but no price would trouble me when I knew that behind the price was a machine that represented the value.

The Reading Iron Company.

In the annual report of George F. Baer, president of the Reading Company, the following reference is made to the Reading Iron Company, whose capital stock is owned by the company which operates the Philadelphia & Reading Railway Company and the Philadelphia & Reading Coal & Iron Company:

Six per cent. annual dividends have regularly been declared and paid on the capital stock of this company. It was necessary to enlarge, rebuild and modernize the various plants of the Reading Iron Company to enable it to compete with other companies engaged in similar business. This has involved large expenditures, which have been paid for out of the earnings.

In 1900 the Reading Iron Company had acquired property and perfected plans for the erection of a steel plant to supply its works with the steel required in its manufacturing business. Before the actual construction was begun an opportunity presented itself for the acquisition of an interest in the Pennsylvania Steel Company, and it was deemed wise policy to purchase stock in that company instead of building a steel plant. The Reading Iron Company now owns 61,671 shares of the preferred and common stock of the Pennsylvania Steel Company, the purchase price was paid for out of the earnings of the company.

The balance sheet as of June 30, 1906, shows assets amounting to $12,264,103.43. The capital stock is $1,000,000. The outstanding mortgage bonds, after deducting the sinking fund securities deposited with the trustee, amount to $341,727.33, and the current liabilities, with accrued interest and dividends, amount to $239,382.61.

San Francisco plans an international exposition in 1913, to be called the Pacific Coast Exposition, in celebration of the four hundredth anniversary of the discovery of the Pacific by Balboa.

THE IRON AGE

1855—1906.

New York, Thursday, October 4, 1906.

DAVID WILLIAMS COMPANY, - - - - - - - PUBLISHER
CHARLES KIRCHHOFF, - - - - - - - - } EDITORS
GEO. W. COPE, - - - - - - - - - } EDITORS
A. I. FINDLEY, - - - - - - - - - } EDITORS
RICHARD R. WILLIAMS, - - - - - - - - - HARDWARE EDITOR

The Pre-emption of Mineral Reserves.

The extent to which raw material reserves should be accumulated against the needs of the more remote future is a problem of the greatest moment to the large steel companies of the country. It is more complicated than the question of making enormous outlays, involving heavy interest charges over a term of years, with which railroad and other corporations are frequently confronted. In the latter case the calculation has as its main elements the enlarged earning power which the expenditure will eventually bring and the probable interval in which the bonds will be only a drain upon the earnings while the improvement programme is being rounded out. A manufacturing company deriving its raw materials from the earth has as the most serious feature of its problem the fact that often it acquires such materials with the certain knowledge that they will not contribute to its earnings for 20, 40, 50 or even more years. Even though there may be a steady enhancement in the value of the reserves the expense of carrying a great body of unproductive property might prove a serious drain upon earnings.

A conspicuous example of the disaster possible in loading up with mineral property that will not come into use for many years is furnished by the Philadelphia & Reading Railroad Company. Its long receivership followed a campaign of coal-land buying in the anthracite region that burdened it with interest charges far beyond its ability to meet. The argument for the policy of acquisition was that the activity of competitors, particularly the Lehigh Valley Railroad, in taking up anthracite lands threatened the future of the Reading. It was urged that unless vigorous steps were taken the day might come when the Reading road would find itself with no coal to carry. The very effort of self preservation brought about a scale of values for anthracite properties that hastened disaster. The correctness of the judgment that at a future day these anthracite deposits would be immensely valuable to the company has been established by events; but the vicissitudes of intervening years and the losses to original stockholders are a serious offset to the element of foresight.

Parallel to some extent with the steel master's problem of providing for the future at the expense of the present is that arising from the enormous outlays the Pennsylvania Railroad is making for its New York tunnels and passenger terminals. On the one hand is the bold proposal to take the lead in securing direct access to the heart of New York, borrowing hundreds of millions to finish the work in the shortest possible time and trusting to the certainty of magnificent earnings, dating from the completion of the new facilities, to maintain credit operations meantime. Against this view is that which, while paying tribute to the brilliancy of the conception and the daring of its execution, questions whether so colossal an outlay can bring returns proportioned to its unprecedented scale, and whether the burden of the years of construction and of the early years of operation will not be seriously felt.

In the acquisition of coal lands an uncomfortable reminder of the danger of reaching too far into the future has come to one important company. If prices are highly remunerative for a period of years the burden of the lands acquired for operation in the next generation does not press so heavily. But where an important percentage of output is taken up by term contracts at low or only moderately profitable prices the pinch of interest obligations may be felt most inopportunely. In bituminous coal, at least, the appropriation of the supply is not so complete as in the case of iron ore. Yet there are evidences of some competitive loading up with choice coking and steam coal deposits in Pennsylvania, Ohio, Virginia and West Virginia. In the opinion of some students of the situation the movement has been overdone. In evidence is cited the buying of lands on which in all probability openings will not need to be made short of 80 years.

The Lake Superior ore situation has afforded marked examples of the competitive pre-emption of mineral reserves for use in the distant future. Tens of millions of the bonds and preferred stock of the United States Steel Corporation represent ore properties. It is quite certain that further large additions to the obligations of the corporation would have been made on the same account in the two years following its organization had the view been taken then that exists to-day of the necessity of ore to the preservation of its pre-eminence. While it is true that large immediate outlays of money are not necessary to secure leases on Lake Superior ranges, the high level of bonuses and of royalties constitutes a heavy burden for every year of operation, a charge that must be met with the same regularity as the interest on bonds representing the original ore purchases of the corporation. The question occurs, if such high present values are to be taken as the basis of computation will not the value of such of these ores as remain in the ground 30 or 40 years be greatly enhanced, if proper allowance be made for interest accumulations meantime? In any case will not the accumulated charges against the capital representing ore call for an important increase in the depreciation allowance for minerals that become more and more difficult to replace?

It is frequently said of the large iron and steel companies, as it has been said with particular emphasis in regard to a Southern iron company, whose stock has appreciated greatly, that at current valuations on iron ore and coal properties their mineral wealth alone more than equals their capitalization. But all such statements ignore the fact that only a fractional portion of such mineral reserves have a realizable value at one time, the business of the companies owning them being to turn them into such finished forms and at such rate of annual production as the market will absorb. It must be considered that there will be years in the life of these reserves in which the value of a ton of ore or a ton of coal will be less than its value to-day. Yet through all such years earnings on the products of the mills must provide for the carrying of such ores and coal on a basis of values produced by the present-day scramble.

It is evident that the common belief that the life of the Lake Superior ore deposits is shorter than that of the 50-year bonds issued by the Steel Corporation in 1901 is largely responsible for the struggle to corral supplies for years ahead. Whether the market requires the ore or not, stipulated minimum outputs must be made, or at least the royalties paid on them, so that in one way or another the consumers of iron and steel must pay well

for the necessity to which the steel companies have been put of arming themselves against the future. The American steel trade thus carries a burden not unlike that imposed on the nations by their competitive armaments for offense and defense.

Light Colors for Machine Tools.

There are those who prophecy that the custom of painting machine tools in light colors, which had its origin in France and which has been adopted in some of the United States Government plants and a few other American shops, is to become much more general in the next few years. The chief purpose in doing away with the black and dark blue colors now generally in use is to secure a greater amount of light. Darkly painted machinery takes a great deal of light out of a shop; the rays seem to be absorbed into the somber pigments. Shadows are increased and places that would otherwise have some degree of light are obscured in the predominance of heavy colors. Coupled with the purpose of better illumination is the desire for a more attractive appearance of the rooms, on the theory that the best possible shop conditions pay. In certain instances, with the advertising idea in mind, the plan is to impress the visitor to the works, and, through the medium of the photograph, the reader of trade literature.

The argument is made that the lighter and neater a machine shop the better and the more work can be produced, and that every element which tends to cause these conditions may be worth the while from a financial point of view. Consequently this question may be reduced to one of dollars and cents: Is the additional cost of covering machine tools with oil proof enameled or varnished light colors, and keeping them free from dark stains, greater or less than the gain in production, in quality or quantity, or both, resulting from the additional light and its accompanying advantages, the latter item including some saving in the cost of artificial lighting?

There is a vastly greater appreciation of light in shop design to-day than there was a generation ago, and the means of procuring it have advanced with the demand. The old-fashioned shop was usually a dingy, gloomy place where artificial illumination was required, away from the immediate vicinity of windows much of the time, and occasionally all of the time, either winter or summer. To-day the manufacturer seeks daylight as one of the essential features of his works, because he knows that his men do better and usually more work with natural light and that they are better off physically when they labor under the combination of good light and good air. The maximum of wall space is given to windows, and wherever possible overhead light is obtained. Prismatic glass and other means are employed to throw light to places remote from windows. Dark corners are guarded against as far as feasible. The presence of dark colors in machinery doubtless neutralizes a great deal of sunlight, while, on the other hand, the substitution of light reflecting colors must add to the natural as well as to the artificial illumination.

It is a well recognized fact that the lighter and neater a shop the better dressed and neater are the workmen. Quality of dress counts but little under manufacturing conditions, but a man who does neat, good work is apt to be a man of neat personal habits, and, reversing the viewpoint, conditions which tend to make a man personally neater may be reflected in his work. Naturally, too, a shop where such conditions exist must attract the very best class of workmen, which is no unimportant factor, especially nowadays when good men are difficult to obtain. There may be in these factors a reason for extending the lighting features of a machine shop or factory by substituting light colored for darkly painted tools, and certainly these reasons enter into the motives of the Government and of owners of certain private establishments which have adopted the new practice, and of others who plan to do so.

The New York, New Haven & Hartford Railroad has reserved the right to name the color of the tools which will constitute the equipment of the great locomotive repair shop at Readville, Mass., the understanding being that a very light tint will be employed. One large hardware manufacturer has chosen a light gray for his machine tool color. Another large establishment has adopted a lightish yellow. In France a pure white and a cream white are accepted colors. Where care is taken to keep the tools well wiped the effect is certainly a pleasing one. The old machine tool color was a bright green, much the same as that used to-day on textile machinery. Black came to be considered a better color, and no machine tool manufacturer on this side of the water has departed farther from it than to a dark blue, which has considerably more brightness, though not to be compared to a really light color.

Machine tool builders do not, as a rule, favor the change, and probably they will assist but little in bringing it about. They look upon a machine shop as a place which must always be more or less dirty, from the nature of the work in hand, coupled with the free use of oil which is increasing with more rapid production. Light colored machinery can be kept decently clean only by a great deal of labor. There must be frequent wipings, for without almost constant care machines would become so stained that they might as well have been painted black in the beginning. It is not difficult to picture a white engine lathe, using oil in its work, stained brown and black, streaked and smudged with oil and particles of chips. A battery of white screw machines will form a still more striking illustration of what might come with light colors. This is the view of the great majority of machine tool builders, and indicates that if the change is to be brought about it must be through the demand of their customers rather than from their own recommendation and adoption.

Advances in the British Iron Market.

It is rare that British iron and steel manufacturers need any caution against a too rapid advance in prices. Market reports for the last week of September indicate that finished lines, which have not gone forward in the way that has been noticeable in pig iron, are now increasingly active at higher prices. In some products on which agreements exist sales are being made above the agreed basis, which is a repetition of the experience so familiar in the United States. It is not surprising that manufacturers in Great Britain find the temptation very strong, after so many lean years, to get all that the present prosperity will yield. Commenting on reports from the West of Scotland and the Midlands of higher prices for finished iron and steel in the week ending September 22, with some attendant excitement, the London *Engineer* urges that the tendency to overdo advances be resisted. It adds that buyers are not shut up to the source of supply furnished by their own country, and that while at present Germany, Belgium and the United States are busy with their own needs, British markets will receive more of their attention when the slack time comes.

While prosperity in the iron trade of Great Britain

and Continental Europe was not so marked in 1905 as in the United States, the views expressed abroad respecting 1907 appear to be fully as optimistic as those that have come out in this country since record crops became assured. In the British iron market the expectation of manufacturers is that both in demand and in prices 1907 will be an improvement upon 1906.

Official Producer Gas Tests.

WASHINGTON, D. C., September 29, 1906.—The Geological Survey is about to publish a preliminary report on the work of the fuel testing plant originally erected at St. Louis in connection with the Louisiana Purchase Exposition and since operated under a special appropriation by Congress "for the analyzing and testing of the coals, lignites and other fuel substances of the United States in order to determine their fuel values." An interesting feature of the report is a short chapter devoted to the producer gas tests made in 1905, an abstract of which is herewith presented.

Increased Facilities.

In order that the work outlined for 1905 by the gas producer division of the fuel testing plant might be completed in the time allowed it became necessary to increase the capacity of the plant. Accordingly a second producer with its economizer was installed. These producers are worked independently, one being charged while the other is in operation, but both discharging into the same scrubber. By this arrangement no time is lost in changing from one coal to another at the end of any test, as a simple manipulation of valves brings the second producer into operation when the first is cut out. The remainder of the operating portion of the plant has not been changed, so far as new installations are concerned.

The operating conditions from May 1 to December 31, 1905, were far superior to those possible in the Exposition period of 1904, and the results have been subjected to refinements that were not attainable in the previous operation of the plant. The determination of the amount of coal actually burned in the producer for any given period is at best a factor of more or less uncertainty. To reduce the possible error to a minimum it was deemed necessary to make the test on each coal as long as consistent. A schedule was therefore adopted at the beginning of this series of tests involving two 60-hr. runs per week. The first 8 to 12 hr. of each test period are used for getting the fuel bed into uniform and efficient condition. During these preliminary hours records are taken as in the regular tests, but the official test, as reported, includes only the last 48 or 50 hr. of the run, during which time the conditions are maintained as uniform as possible. Special attention is being directed to the very important item of measurement of the coal actually used and special charts and checking devices have been introduced for this purpose.

Owing to the lack of reliability in the operation of the gas engine many of the tests conducted during the Exposition period were of a few hours' duration only, but since the present series of tests began (May, 1905) no difficulty has been experienced in starting the engine at 8 a.m. Monday and continuing day and night without a stop until 8 a.m. Saturday. During this period two different coals are tested, and the change of gases is made at 8 p.m. Wednesday, without stopping the engine.

Sixty-four Tests Made.

In the period from May 1, 1905, to January 1, 1906, 64 gas tests have been made. One of these tests was run on coke breeze and one on Brazil coal. The remaining 62 were divided as follows among different States: California, three tests on lignite and locomotive cinders; Illinois, 18 tests on coal; Indiana, eight tests on coal; Kansas, one test on coal; Kentucky, four tests on coal; North Dakota, three tests on lignite; Ohio, seven tests on coal; Pennsylvania, seven tests on coal; Virginia, four tests on coal, West Virginia, five tests on coal; Wyoming, two tests on coal.

The results of the majority of the tests have been exceedingly gratifying, official records having been made as low as 0.95 lb. of dry coal per hour burned in the producer per electrical horse power developed at the switchboard, or 0.80 lb. of dry coal per hour burned in the producer per brake horse power, on the basis of an assumed efficiency of 85 per cent. for generator and belt.

Throughout the tests a constant effort has been made to do away with unnecessary appliances. This effort has furnished valuable and interesting information and has centered attention on several radical changes in the details of producer gas plant construction.

Sulphur Not Detrimental.

It was found at an early date that more or less sulphur was passing the purifier and entering the engine cylinders. Investigations by the chemists showed that purifiers consisting of oxidized iron filings and shavings are fairly efficient for coals containing little sulphur—1 per cent. or less—but is was found that for coals containing larger percentages of sulphur the purifier became completely exhausted after about six or eight hours. Mixtures of lime and shavings were tried, but with little success. As a result of these investigations the purifier has been discarded, and the gas, carrying its full percentage of sulphur, has been charged directly into the engine cylinders. This method of operating has been going on for many months and no ill effects have been discovered, though coal has been used containing as high as 8.1 per cent. of sulphur.

One feature of the plant as installed was the economizer used for preheating the air for the blast. A series of experiments has shown no effect on the chemical composition of the gas or on the efficiency of the plant when air at ordinary atmospheric temperature was substituted for preheated air. As a result the economizer as an economizer, has been discarded and the construction of the plant again simplified.

Other modifications and changes are under investigation at the present time, the most important from an economic standpoint relating to the utilization of slack coal in producers.

Detailed reports of the tests referred to, including chemical analyses of fuel as well as steaming and coking tests, have been compiled and will be ready for distribution by the Geological Survey in the course of a few days.

W. L. C.

New York Y. M. C. A. Courses in Building Construction.

The remarkable activity in building construction in New York City during the past months, notably instanced by the fact that below Fulton street alone $50,000,000 is being expended on skyscraper construction, has led to important enlargement in the courses covering such work which were opened at the West Side branch of the Y. M. C. A., 320 West Fifty-seventh street, on the evening of October 2. At present builders are greatly needing men with knowledge of general building construction, estimating and drafting. The new classes will include thorough instruction in these branches. They are designed for superintendents, foremen, clerks, mechanics, and all those connected with such work who need training in order to rise to positions of importance.

Special attention will be devoted to the modern lofty steel skeleton building. A set of lectures with illustrations taken from actual building operations will be given to enable men to understand every part of its erection. These lessons will not be highly technical, but sufficient for general work. Groups of 20 men will be in charge of practical estimators, and will take up the work of the various building trades. In this practice work, plans and specifications of actual structures will be used to make the student competent to figure and work from plans on projected work.

The course will be under the direction of L. E. Jallade, architect, and an Advisory Committee, including J. M. Carrare of Carrare & Hastings, R. P. Bolton, consulting engineer of the New York Central Railroad terminal; Charles T. Wills, builder of the Tiffany and Gorham

buildings. Other prominent architects, engineers and builders have promised to visit the classes and help the students.

The instruction will include general building, excavating, shoring and underpinning, masonry, structural steel and ornamental iron work, carpentry, plastering, sheet metal work, glazing, hardware and reinforced concrete instruction. The courses will continue for four months.

At the opening night of these courses addresses were made by John M. Carrare, R. P. Bolton, and Henry W. Hodge, consulting engineer for the Hudson Memorial Bridge.

OBITUARY.

GEORGE H. POOR, who became known through the invention of a railroad air brake, died at Portland, Maine, September 28, aged 61 years.

BYRON E. HUNTLEY, president of the Johnston Harvester Company, Batavia, N. Y., died in that city September 28, aged 81 years.

LOUIS SCHUTTE, a well-known mechanical engineer, president of the Schutte & Koerting Company, Philadelphia, Pa., died September 29, aged 65 years. He was born in Hanover, Germany, and graduated at the College of Engineering in that city in 1862. For several years he followed his profession in Hanover and in London, where he became associated with Ernest Koerting. In 1870 he came to this country and established a business in Philadelphia, which developed later into the Schutte & Koerting Company.

Transporting a Large Telescope.

An order for a special truck to carry a big telescope and several hundred tons of structural steel to the summit of Mt. Wilson has been placed with the Couple-Gear Freight Wheel Company, Grand Rapids, Mich., by the Carnegie Institute, Solar Observatory of Pasadena, Cal. One large casting weighs five tons, and the car has been designed to carry this, which will be the greatest single load. The trail is nine miles long and mounts to an elevation of about 5000 ft., or nearly a mile, and about $25,000 is being spent on widening it sufficiently, for the truck will be 6½ ft. wide and 20 ft. long. It will be driven by a gasoline engine and generator, which will supply current to the four couple-gear motor wheels. The most distinctive feature of the couple-gear electric truck is that its motors are incased in the wheels and apply power to both sides of each wheel. All four wheels are concerned in the driving, steering and braking.

For a vehicle with a capacity of five tons, each wheel contains a 2½-hp. motor, capable of heavy overload and which, while driving the car at six miles per hour, revolves at the high speed of 1400 rev. per min. By means of the couple gear this speed is reduced 25 to 1, and the motor is connected direct to the rim of the wheel without intermediate shafts or bearings. The equal division of power between two opposite points on the wheel rim relieves the axle of driving pressure. The company will have twenty-five new machines of the same capacity completed before the end of the year, and by July 1, 1907, will be turning out one complete 5-ton truck a day. The company will later design and build lighter trucks and delivery wagons, employing the couple-gear motor wheels. A description of one of the first trucks turned out by this company appeared in *The Iron Age*, August 10, 1905.

In a recent patent for a means of balancing the moving parts of a steam or other engine a weight is attached on the lower side of the connecting rod, so as to bring the center of gravity of the piston, connecting rod and weight at crank pin. For single cylinder engines another weight is attached to the crank on the opposite side from the crank pin, so that the center of gravity of all the moving weights is at the crank shaft. With multicylinder engines this second weight may be so adjusted as to balance the net component of the other weights and moving parts.

The Patent Office Congestion.

A movement toward bettering the congested conditions in the United States Patent Office has been inaugurated by Fred. W. Barnaclo, patent attorney, 150 Nassau street, New York, who has gathered statistics showing that in some departments it is more than 11 months behind in its work. Mr. Barnaclo has written a letter to President Roosevelt communicating the result of his investigation, and urging him to make a paragraph in his forthcoming message to Congress calling attention to the need of better facilities for handling the Government's patent business. He declares in this letter that the lack of facilities and men for handling the work of the Department is a danger that vitally affects the commercial, industrial and financial interests of the country. Following Mr. Barnaclo's activity in the matter numerous inventors and manufacturers have come forward with complaints to the effect that applications for patents are sometimes held up more than two years because of the lack of examiners and the need of a better system in the Patent Office, which it is averred is conducted, as far as the general system is concerned, on the same plan as that laid out by Washington's Administration.

Mr. Barnaclo's investigation shows that in January last there were 17,353 applications awaiting action in the 39 divisions of the Patent Office. To date there are 24,000 cases on the docket which have not been reached for examination, and tabulations prepared by the attorney show that the office is falling behind from 250 to 300 cases a week. It is shown in the records that the average number of applications filed a week is from 800 to 1200, and there are only about 600 patents issued a week. Among the divisions most behind is that which handles applications for patents on steam boilers, furnaces, &c., which is 8 months and 19 days behind in its work, and there are 696 cases on hand. Among other divisions that are behind are those handling applications as follows:

Hydraulic motors, pumps and sewerage appliances, 11 months and 23 days behind and 1029 cases on hand.

Bridges, conveyors, cranes, derricks, excavating, hoisting and like machinery, 1 month and 4 days behind and 508 cases on hand.

Air and gas engines, pumps and pneumatics, 10 months behind and 993 cases on hand.

Machine tools, 7 months and 19 days behind and 675 cases on hand.

Elevators, journal boxes, lubricators, machine elements, pulleys and shafting, 4 months and 17 days behind and 657 cases on hand.

Cutting and punching machinery, sheets and bars, metal bending, making sheet metal ware, tools and wire working devices, 4 months and 21 days behind and 421 cases on hand.

Annealing, tempering and coating in metals, electro-chemicals, metal founding, metallurgy, &c., 3 months behind and 375 cases on hand.

Electricity conductors, electric appliances, lighting, &c., 11 months and 7 days behind and 1069 cases on hand.

Steam engineering, 4 months and 23 days behind and 472 cases on hand.

Motive power, 5 months and 25 days behind and 613 cases on hand.

Clutches, &c., 7 months and 15 days behind and 398 cases on hand.

It is claimed by the compiler of the statistics from which the above details are taken that the time mentioned in which the several departments are behind designates the length of time it takes from the filing of an application for a patent for the applicant to hear from the department that the matter has been taken up for examination. It sometimes takes two years after the matter is taken up before the patent is finally granted. It is declared by inventors that there are numerous cases on record of patents having been granted on articles too late to make their possession a valuable asset. Mr. Barnaclo asserts that the examining force of the Patent Office should be increased to four times its present size. He also declares that the patent examiners are not adequately paid for the talents they are expected to possess and consequently men of the necessary ability and attainments are too frequently lured from the service by more lucrative offers. The tables prepared by Mr. Barnaclo are to be submitted to the House and Senate committees on patents of the coming Congress with the idea of impressing the members with the needs of the Patent Office.

Eighty Feet of Stripping.

More Than 13,000,000 Cubic Yards of Overburden.

DULUTH, MINN., September 29, 1906.—As an indication of the immense undertaking of the Oliver Iron Mining Company on the western Mesaba, it may be stated that the company is now preparing for the stripping of a tract of 80 acres to the average depth of 80 ft. This will be a total of more than 13,000,000 cu. yd. of overburden, several times the largest job ever undertaken in this country, and one that will require years for its completion. The body of ore to be opened by this stripping operation is at least double the stripping over it, and it will consume many years in mining. This operation is to be at Coleraine, which is the western Mesaba headquarters of the Oliver Company. At Holman, a short distance northeast, another operation almost as large has begun. The company is now erecting washing plants at Coleraine for concentrating its ore from this section, and these will be in shape for test very shortly.

In section 17-56-23, about 6 miles northeast of Coleraine, the same company is now clearing off a site for a village, from which several mines in the immediate neighborhood will be handled. At present there is no development in that vicinity aside from drill holes and test pits, but large bodies of ore have been shown by this development, both by the Oliver Iron Mining Company and the Great Northern Railroad, and it is on these tracts that mining will commence. In this same vicinity the Cleveland-Cliffs Iron Company has two ore bodies, one on the west 160 acres of section 10, and the other on the west half of the southwest one-quarter of section 15. Between these two, which lie half a mile apart and directly north and south of each other, the Oliver Company has an 80, that is known to contain a very considerable body of ore. On section 16 the Great Northern has a large unopened tonnage, and on 18 and 21 the Oliver Company has taken a lease on which much ore has been discovered. It is reported that much of the land mentioned is to be redrilled quite thoroughly the coming winter, and this would naturally be in anticipation of more active development.

The Grab Bucket for Stripping and Mining.

The Hoover & Mason grab stripping and mining contrivance at the Grant mine of the Interstate Iron Company has been working more or less continuously for some months now, but has not yet reached the point where a satisfactory test can be made. There have been multitudinous accidents, and the machine has so far moved about as much stripping as one steam shovel might handle in 30 days. It will probably be some time before any exact idea of its efficiency can be given. The experiment is watched with interest, as it is a decided innovation and the cost of installation is very great. If the machine operates successfully it should move dirt at little expense, though its comparative immobility and the inflexibility of the system are unfavorably commented on.

Great Increase in Cars for Ore Roads.

Most significant is the fact that the Duluth, Missabe & Northern and the Duluth & Iron Range roads, both Steel Corporation interests, have greatly increased this week their car and motive power orders for the coming year. The former, which had ordered 800 cars, has now increased this to 1750 all-steel 50-ton hopper bottom cars of 24-ft. length. The latter, which had ordered 400, has increased the number to 700. This makes 2450 new steel cars for next year. Each of these ore cars is good for about 2000 tons for the shipping season, but a considerable proportion of them will replace smaller and less efficient wood cars, for both roads are disposing of their wood cars as fast as possible. The Missabe road has made a motive power order for 20 locomotives—14 for the main line ore service, four for switching and two for passenger work.

Railroad surveyors are again out on the proposed line to give the Port Arthur, Duluth & Western road a Duluth connection. Last winter a line was run from the terminus of this road south of the international boundary in Minnesota to the northern terminus of the Duluth & Iron Range. Now the engineers are running lines to connect with the northern terminus of the Duluth & Northern Minnesota. The Port Arthur road now connects Canadian head of the lake ports with the old Paulson iron mine on the west end of Gunflint Lake, in T 65-4, and ends there. The Duluth & Northern Minnesota ends in the northeast corner of 2 59-6, leaving a gap of 30 to 35 miles between the two. This region is thus far almost unexplored, but in time it may prove to contain considerable value.

Noteworthy Work on the Old Ranges.

At its new Maas mine the Cleveland-Cliffs Iron Company is tremendously active in the erection of buildings and the placing of machinery that will make the mine a large producer at an early date. There will be boiler capacity of 1000 hp. and the plant will be fitted with fuel economizers, mechanical stokers and induced draft. There will be two hoists, one for ore and one for men, one a first motion and the other a second, both Corliss type. There will be a 50-drill compressor and an electric haulage system, the latter not until the mine has been more completely opened, however. It is expected the surface plant will be ready for operation before January and the mine will be producing largely next year. It is about five years since development was commenced on this property, and 22 months were spent in getting the shaft to ledge. In this and other respects it has been the most notable work ever undertaken in the Marquette region.

The Rolling Mill mine at Negaunee, Mich., is cutting a plat at 620 ft. and will drive to ore which has been cut. It is an excellent ore to mix with the characteristic Mesaba.

The amount of exploration under way on the Menominee range is astonishing, and as new developments come to light from week to week is seen to exceed by far anything that has been supposed heretofore. Cole & McDonald of Duluth have 10 diamond drills at work in the Iron River district and 12 drills are looking for ore in the Stambaugh Valley, while in Crystal Falls and Iron Mountain there is the same activity, perhaps slightly less pronounced, however. Among those working in the Stambaugh district are Oglebay, Norton & Co., who are sinking two shafts close to the depot, both of which have cut some ore. The Buffalo & Susquehanna Iron Company is working close by on the old Hiawatha, and having cut ore is now developing for immediate mining. The Oliver Iron Mining Company's Dober is growing, and the company has done some drilling to catch the Caspian ledge. At the Caspian mine Pickands, Mather & Co. are sinking a second shaft, as well as developing on the 300-ft. level. There is a large ore deposit at this property, and it may be stripped for milling, though over the ore is a surface of 130 ft. containing a large amount of quicksand. Corrigan, McKinney & Co. have several properties here, and are developing on a large scale. Their Baker has a shaft 200 ft. deep, the first 100 ft. of which was through quicksand and was very hard to drive. They are also drilling on land close to the Baker, and will develop about a mile of ore lands at this point. The Fogerty, of Pickands, Mather & Co., is now sinking a shaft to prove ore cut by drill. It is also building 30 excellent dwellings and putting in other accommodations for men. At the Youngs mine adjoining, which has just been bought for $500,000. development is under way. It lies very close to the Baltic, of Pickands, Mather & Co., on which a shaft is being sunk. Pickands, Mather & Co. also have a mile of land beyond the Baltic, on which they are now exploring with drills, the work being done by the firm of Cole & McDonald. Half a dozen other explorations are starting along the immediate vicinity of Stambaugh, and it is supposed that the Cleveland-Cliffs Company will begin work there shortly. D. E. W.

Employees of the United States Steel Corporation have been notified that if they desire to take advantage of the corporation's standing rule regarding offerings of Steel preferred stock to employees they may subscribe on January 1 at $100 a share.

Census of Foundry and Machine Shop Products.

WASHINGTON, D. C., October 1, 1906.—The Census Office has compiled the official returns of the census of 1905 covering the manufacture of foundry and machine shop products in the United States and in the 10 leading States in the order of their output. From these figures it appears that in 1905 there were 8993 establishments with a capital of $845,024,825, as compared with 9324 establishments having a capital of $665,058,205 in 1900. The item of capital in these returns includes live assets only and bears no relation to issues of stocks and bonds. There were 348,381 wage earners, receiving $196,247,413 in wages in 1905, against 350,327, receiving $182,232,009, in 1900. The miscellaneous expenses of the industry in 1905 were $70,094,411, as compared with $41,103,995 in 1900. The materials consumed in 1905 were valued at $278,074,203, against $286,357,107 in 1900, while the total value of the product of the industry in 1905 was $685,901,388, compared with $644,990,999.

The reduction in the number of establishments is attributed to the general tendency toward consolidation in the larger industries. The reduction in the number of wage earners, accompanied by the substantial increase in the wages paid, is believed to be due to the increased use of improved labor saving devices and to the general upward tendency in rates of pay. The reduced cost of raw materials is attributed to the fact that the figures for 1905 include a larger proportion of machine shops as compared with foundries than those for 1900. In the machine shop the cost of materials bears a smaller relation to the finished product than the item of labor and this conclusion is borne out by the relatively large increase in the amount of wages paid.

	United States.		Pennsylvania.		New York.	
	1905	1900.	1905.	1900.	1905.	1900.
Establishments	8,993	9,324	1,182	1,260	1,243	1,352
Capital	$845,024,825	$665,058,205	$169,646,734	$154,958,750	$120,381,946	$107,926,155
Wage earners	348,380	350,327	56,853	62,828	45,156	50,173
Wages	$196,247,431	$182,232,009	$31,231,113	$33,199,521	$26,128,845	$27,576,739
Miscellaneous expenses	$70,094,411	$41,103,995	$10,995,027	$6,830,037	$10,453,327	$7,390,514
Materials	$278,074,203	$286,357,107	$48,149,886	$62,336,770	$33,600,691	$41,814,790
Products	$685,901,388	$644,990,999	$112,856,748	$127,292,440	$91,432,923	$96,636,517

	Ohio.		Illinois.		Massachusetts.		New Jersey.	
	1905.	1900.	1905.	1900.	1905.	1900.	1905.	1900.
Establishments	866	861	736	758	677	825	397	353
Capital	$100,442,712	$68,766,347	$78,314,131	$51,870,701	$70,090,094	$62,498,989	$57,730,411	$31,550,687
Wage earners	44,014	41,799	32,966	31,851	31,599	32,234	21,878	17,918
Wages	$23,834,116	$20,563,268	$19,785,946	$16,881,423	$18,333,320	$17,862,854	$12,424,825	$9,375,824
Miscellaneous expenses	$9,243,952	$4,086,682	$7,694,816	$1,095,758	$5,461,298	$3,535,269	$4,448,568	$1,908,216
Materials	$36,101,419	$31,578,934	$29,757,202	$28,603,391	$20,700,746	$21,357,406	$16,731,258	$14,879,987
Products	$85,969,929	$72,399,632	$73,003,940	$63,878,356	$55,071,239	$56,290,159	$41,539,644	$32,621,229

	Wisconsin.		Michigan.		Indiana.		Connecticut.	
	1905.	1900.	1905.	1900.	1905.	1900.	1905.	1900.
Establishments	319	272	397	364	296	337	232	260
Capital	$45,349,606	$22,387,310	$19,009,633	$19,595,771	$22,227,723	$14,820,001	$24,763,180	$23,020,068
Wage earners	13,890	12,670	12,760	13,502	10,967	10,339	12,292	12,646
Wages	$7,878,133	$6,376,040	$6,797,176	$6,527,496	$5,377,933	$4,616,775	$7,043,755	$6,948,309
Miscellaneous expenses	$2,701,400	$1,671,907	$2,383,099	$1,540,950	$2,249,744	$1,095,758	$2,246,119	$1,093,036
Materials	$11,577,021	$10,167,488	$10,446,297	$8,222,862	$9,620,731	$8,326,352	$6,538,099	$6,683,689
Products	$27,463,334	$22,352,730	$24,178,321	$20,615,864	$21,078,675	$17,228,096	$20,067,953	$18,991,079

Pennsylvania in the Lead.

Pennsylvania returned the largest total product in 1905, amounting to $112,856,748, but this was a loss of nearly $15,000,000 as compared with 1900, when the total was $127,292,440. In 1905 the establishments in this State numbered 1182, as compared with 1260 in 1900, and the capital was returned at $169,646,734, as compared with $154,958,750. There was a decline in the number of wage earners from 62,828 to 56,853, and in wages paid from $33,199,521 to $31,231,113. The item of miscellaneous expenses increased from $6,830,037 to $10,995,027, but the cost of materials declined from $62,336,770 to $48,149,886.

New York, which occupied second place in 1900, still holds that rank, but the product of the State shows a decline from $96,636,517 to $91,432,923. Ohio, which reported a product valued at $72,399,632 in 1900, has made a large gain and in 1905 returned an output valued at $85,969,929. Illinois, which held fourth place in 1900 with a product valued at $63,878,352, has made a very substantial gain and in 1905 was credited with an output of $73,003,940. The accompanying table shows the principal details of the returns of the industry for the United States and the 10 leading States.

It is significant that the three important Eastern States of Pennsylvania, New York and Massachusetts should show a reduced output, while gains are recorded by all the Western States included in the above figures.

W. L. C.

Labor Notes.

It is reported that apart from a limited number of men required for special work the National Metal Trades Association has supplied the vacancies in the Pope Works at Toledo, Ohio, caused by the strike of machinists. Nearly 400 machinists went out.

The strike of machinists and blacksmiths on the Wabash Railroad was settled at a conference held in St. Louis last week. By the terms of settlement both classes of workmen receive a wage advance of 2 cents an hour. The strike involved about 1600 men employed in the shops of the road at Springfield, Decatur, Moberly and Fort Wayne. The men presented a demand for an advance from 30 cents an hour to a sliding scale basis of 33 to 35 cents an hour.

The McClure Company, Pittsburgh, operating tin plate mills at Washington, Pa., has decided to run its plant nonunion in the future. The company has already secured a number of men, and expects to have its plant in full operation within a week.

A correspondent of the London *Engineer* gives the results of experiments on the comparative strength of cast iron test bars. In the case of bars from metal run quite hot into the mold and of bars cast from metal kept in the ladle until so cold that it would just run and fill the mold, there was no appreciable difference in ultimate strength between the hot and dull run bars, but the dull run bar was much stiffer. In regard to the action of blows, a cast iron tensile link, whose neighbors all stood from 12 to 13 tons per square inch, broke with a load of 7 tons, after a number of smart taps with an iron pin upon the link while bearing the 7-ton dead load. At each tap given to the link the pointer registering the extension visibly dropped until fracture took place.

The regular monthly meeting of the Pittsburgh Foundrymen's Association will be held in the Colonial Annex Hotel, Pittsburgh, on Monday evening, October 8. At this meeting officers for the ensuing year will be elected, and the meeting will be preceded by a dinner. Addresses will be made by Congressman James F. Burke and others.

PERSONAL.

Edwin N. Chapman, who has been the auditor and accountant of the David Williams Company and of the Williams Printing Company for some years, has been admitted to partnership in the firm of Chisholm & Pouch, members of the New York Stock Exchange.

Frank H. Taylor, for the past six years vice-president of the Westinghouse Electric & Mfg. Company, Pittsburgh, Pa., and previously the manager for seven years of the Yale & Towne Mfg. Company's branch office in Philadelphia, has re-entered the latter company's service at the invitation of the directors, and with the expectation that, after the necessary action has been taken at the next meeting of the stockholders, he will become a director and vice-president.

William B. Schiller, president of the National Tube Company, Pittsburgh, while riding near his country home at Sewickley Heights was thrown from his horse and suffered two fractures of one of his legs. While the accident will confine him to his house for some time, no serious results are apprehended.

Robert W. Hunt & Co., Chicago, announce that they have engaged the services of Edward H. Lynde, who for years was connected with the Lackawanna Steel Company, in charge of its Bessemer steel rail department at Scranton, Pa. Mr. Lynde will assume direct charge of the departments of the business which were under the immediate direction of Albert W. Fiero, deceased. It may be of interest to Mr. Fiero's many personal friends to know that under the terms of partnership his widow and children will continue to enjoy his interests in the business of Robert W. Hunt & Co. for three years following his death.

J. W. Copeland, sales manager of the Chicago branch of the Braeburn Steel Company, has resigned, effective November 1. Mr. Copeland will engage in the iron, steel and railroad supply business in St. Paul and Minneapolis.

David Van Alstyne, mechanical superintendent of the Northern Pacific Railroad Company, has resigned to become manager of the Dunkirk plant of the American Locomotive Company.

George L. Henrion, lately superintendent of the American Car & Foundry Company's plant at Binghampton, Tenn., near Memphis, has taken charge of the plant of the same company at Madison, Ill. He leaves the plant at Binghampton equipped for a daily capacity five times greater than he found it. Charles A. Price succeeds Mr. Henrion as district manager at Memphis. For the last seven years he has been purchasing agent for the American Car & Foundry Company, with headquarters at Detroit, Mich.

F. S. Wheeler, treasurer of the American Can Company, New York, is in Europe.

J. C. Maben, president of the Sloss-Sheffield Steel & Iron Company, sailed for Europe last week.

Walter L. Clark, vice-president of Niles-Bement-Pond Company, New York, has been elected a director of the recently organized Sterling Salt Company, which has taken over several salt works.

Fritz Gleim, who was superintendent of the Rockhill, Pa., furnaces before he went to the Island of Elba three years ago as director of blast furnaces there and whence he returned last spring, has been put in charge of operations at the Tidewater Steel Company's furnace, Chester, Pa., for the Maryland Steel Company.

William Runkel, president of the Warren Foundry & Machine Company, New York, arrived from Europe on Saturday on the Celtic.

Prof. A. E. Outerbridge, Jr., opens the season's section meetings of the Franklin Institute, Philadelphia, on the evening of October 4 with a paper on "Recent Progress in Metallurgy."

The Ferris wheel at Earl's Park, London, is to be demolished, its operation having become unprofitable. The original Ferris wheel, it will be recalled, was dismantled last year. It was last used at the St. Louis Exposition.

NEWS OF THE WORKS.

Iron and Steel.

The work of repairing Philadelphia Furnace, at Florence, Ala., the property of the Sloss-Sheffield Steel & Iron Company, is progressing rapidly. The furnace is to be virtually rebuilt at an outlay of $65,000, which will require three months to complete.

The Shenandoah Steel Wire Company broke ground last week for the construction of its large plant at Buffalo, N. Y., which is advantageously located just south of the Lackawanna Steel Company's plant, having track connections with a number of railroads.

It is announced that the Shaw Crucible Steel Works, at Hoquiam, Wash., which was destroyed by fire a short time ago, will be rebuilt. This plant manufactures tool steel from the black sands of North Beach.

The receiver of the Diamond State Steel Company, Wilmington, Del., has announced that the plant will be sold on November 21.

The Lackawanna Iron & Steel Company will repair No. 1 Furnace at Colebrook, Lebanon, Pa. It has lately been running on spiegeleisen.

The Pennsylvania Steel Company is hurrying work on its coke ovens and open hearth steel plant at Steelton, Pa. They are expected to be ready some time early in 1907. The open hearth furnaces will be among the largest in the country.

The Republic Iron & Steel Company has installed a pig casting machine at Haselton, Ohio. This pig casting machine will serve the present stack at Haselton and also the two new stacks which are building, one of which will be ready in a short time. Molten metal will be taken direct by ladle cars from the furnaces to the Bessemer steel plant at Youngstown over the railroad built along the Mahoning River. Should the steel plant be closed down, the furnaces will be tapped into this pig casting machine instead of the hot metal being taken to the steel plant.

The Seamless Tube Company of America, owned by Pittsburgh Steel Company interests, has awarded the contract for the erection of an addition to its plant at Monessen, Pa., to be built of brick and steel and to have a floor space of 58,000 sq. ft.

Fannie Furnace of the Cherry Valley Iron Company at West Middlesex, Pa., which has been closed down for some time for relining and extensive repairs, was blown in on September 29. Three new stoves, 21 x 80 ft., of the Massicks & Crooke design, were built by G. W. McClure, Son & Co., engineers and contractors, Bessemer Building, Pittsburgh. The William Tod Company, Youngstown, Ohio, installed at the furnace a Tod blowing engine with high pressure cylinder 50 x 60 x 96 in. and low pressure cylinder 96 x 60 x 96 in. A condensing plant, including pumps and all other equipment, was installed at the furnace by the Platt Iron Works, Dayton, Ohio. The capacity of the plant has been considerably increased by these additions and improvements and it is expected to turn out about 350 to 400 tons of Bessemer iron per day.

General Machinery.

The Parker Hoist & Machine Company, Chicago, has incorporated with a capital stock of $15,000. The company manufactures a line of contractors' machinery, including engines, derricks, cranes, hoists, elevators, winches, blocks, chains, ropes and fittings. A. E. Parker is president and general manager, F. H. Parker vice-president and secretary, and W. H. Milleville treasurer and superintendent. The company is located at 973 North Francisco avenue.

The Cleveland & Southwestern Traction Company, Cleveland, Ohio, has let contract for a new repair shop at Elyria, Ohio, which will supplant to a very large extent the shops of the company now located at Rockport. The old shop will be retained for light repair work for the southern division.

The Carter & Hakes Machine Company, Winsted, Conn., manufacturer of machine tools, is to erect a forge room 30 x 50 ft. and one story, as an addition to its newly acquired works.

The Standard Mfg. Company, Bridgeport, Conn., manufacturer of automatic gear cutters and electrical novelties, has increased its capital stock from $5000 to $15,000. The company is building a new shop, as has been stated in these columns.

The Lancaster Machine & Knife Works, Lancaster, N. Y., is enlarging its plant by an addition to the main building, 40 x 75 ft., and an addition to the forge shop and grinding room, 40 x 90 ft., two stories high. With these enlargements the company hopes to keep up with orders and will give employment to about 50 more men.

The plant of the McKinnon Iron Works, Ashtabula, Ohio, recently destroyed by fire, is to be rebuilt at once. The new plant will include a machine shop 50 x 120 ft., a blacksmith shop 50 x 100 ft., and a warehouse and office building 20 x 100 ft., two stories in hight.

The Union Mfg. Supply Company, Hattiesburg, Miss., has incorporated with a capital stock of $200,000, half of which will be invested in plant and equipment. It is intended to have the

plant in operation by December 1. The company will have large foundries and machine shops where saw mill machinery of all descriptions will be manufactured. Among the incorporators are W. F. Post, O. R. S. Pool and R. P. Anderson.

The Clarksville Foundry & Machine Company, Clarksville, Tenn., has been incorporated with a capital stock of $25,000 by Graham McFarlane, Guy R. Johnson, Q. C. Atkinson, E. T. Aacher and H. N. Leech.

The Pleasanton Foundry & Machine Company, Pleasanton, Kan., has been organized with the following directors: B. F. Blaker, John A. Hall and R. C. Smith. Geo. Cole of Kansas City will be manager.

Upon petition of creditors the Monongahela City Trust Company has been appointed receiver for the Robinson Machine Company, Monongahela City, Pa. The liabilities are stated at $100,000, with assets of the same amount.

The Buffalo Forge Company, Buffalo, N. Y., has received the following large orders within the past week: Heating and ventilating apparatus, State Normal School, Plattsville, Wis.; St. Paul Auditorium, St. Paul, Minn.; Iowa State College, Ames, Ia.; Standard Steel Car Company, Butler, Pa.; New York Central Railroad at North White Plains, N. Y., including a 160-in. fan, 150 in. wide and heaters, at Croton, N. Y., three 170-in. fans, 180 in. wide; Warsaw High School, Warsaw, N. Y.; forges, Secondary Industrial School, Columbus, Ohio, 12 No. 02D down draft, with blowers, exhausts, &c.; State Normal School, Ellendale, N. D., 20 No. 02D down draft, exhausts, &c.; dry kiln apparatus, International Harvester Company, West Pullman, Ill., Oval Wood Dish Company, Traverse City, Mo., National Body & Box Company, Pontiac, Mich.; air washer and humidifier, Lowell Cotton Mills, Lowell, N. C.

The Federal Engineering Company, Pittsburgh, has completed plans for the building of a new plant for the South Penn Oil Company at Clarksburg, W. Va. The plant will consist of a three-story brick and steel machine shop, 80 x 200 ft.; two-story boiler shop, 45 x 75 ft.; two-story warehouse, 40 x 120 ft.; forge shop and power house. The company will make and repair engines, boilers, fishing tolls, &c. The contract for the erection of the buildings has been awarded to the Richards Construction Company, Clarksburg. The Federal Engineering Company has recently been appointed engineers in the construction of the overhead work, poles, arms, wire, &c., by the Wellsburg, Bethany & Washington Railroad Company. It has recently completed a gas compressing station for the Monongahela Natural Gas Company located near Ellsworth, Pa.

The Standard Gauge Steel Company, Beaver Falls, has started the erection of an addition 50 x 100 ft. which will be used as an annex to the machine shop.

The Standard Electric & Mfg. Company will make extensive improvements at the plant at Niles, Ohio. An addition two stories in hight, 32 x 64 ft., will be built and equipped with the latest machinery. The output of the plant will be increased fully 25 per cent.

Power Plant Equipment.

The city of Port Arthur, Ontario, which voted $50,000 for the extension of its electric power plant, has awarded the Allis-Chalmers-Bullock Company, through its Western agent, Mr. Belknap of Winnipeg, a contract for a 1300-hp. electric generator; Jencks Machinery Company, contract for 1300-hp. water equipment, and the Canadian Pipe Company of Vaucouver, contract for material for building a 6-ft. flume, 2000 ft. in length. At the same time $18,000 was voted for the construction of dams and $93,000 for the extension of water works and sewers.

It is stated that the S. D. Warren Paper Company, Westbrook, Maine, is contemplating the development of a large water power at Dundee Falls, on the Presumpscott River, near South Windham, and the building of a large electric plant on the premises to provide power for its mills.

The Quaker City Iron Works, 1328 Arch street, Philadelphia, Pa., recently incorporated with a capital stock of $50,000, is now erecting a substantial brick and steel plant in the upper part of the city, which will be used for the manufacture of boilers, tanks, stacks and plate metal work. Many machine tools of modern design are to be installed, and the plant is to be equipped for turning out the highest class of work. The plant will have superior shipping facilities, being located directly across the street from the Pennsylvania Railroad's local freight station, a siding of the railroad extending into the works. H. M. League, formerly manager of the Philadelphia Iron Works, is president; Arthur Letchworth, secretary and treasurer, and John J. Mooney, formerly superintendent of the boiler department of the Bethlehem Steel Company, factory manager.

The Service Board of Lorain, Ohio, is seriously considering installing and equipping a municipal electric lighting plant in the water work's pumping station, which is about to be abandoned for the new station. The city is now paying about $14,000 a year for street lighting and it is claimed that the plant will pay for itself in 10 years.

The first lot of an order for 35 electric locomotives being built by the Westinghouse Electric & Mfg. Company for the New York, New Haven & Hartford Railroad, will be sent East from the East Pittsburgh works in a few days. They are of the Westinghouse single-phase, alternating current type, and will be watched with interest by railroad men and locomotive manufacturers for results and conditions of operation. The entire order will be shipped within the next couple of months and will be placed in regular passenger service on the New Haven road. Severe tests have been made of the first lot on the Westinghouse Inter-Works Railroad at East Pittsburgh. The performances were entirely satisfactory to the railroad and electric company. The Ontario Power Company, which operates on the Canadian side of the Niagara Falls, recently decided upon an enlargement of its power house capacity, and has contracted with the Westinghouse Company for two of the largest generators ever turned out at East Pittsburgh. These machines are 10,000-hp. each. The power company has already installed four machines of the same make. This last contract includes switchboard appliances.

The business of the Westinghouse Machine Company, East Pittsburgh, for August, shows that the orders received last month foot up about the same as in July, when the business summarized represented a total of 60,000 hp., consisting of steam engines, steam turbines, gas engines and Roney mechanical stokers. This record is exceptional for this time of the year, but especially so when it is considered that this business is twice as large as during the same period of last year. A further report, giving the record of the first quarter of the current fiscal year, which ended with the last day of June, showed an actual increase over the same period last year of 75 per cent.

Among recent orders received by the Crocker-Wheeler Company, Ampere, N. J., are: Watervliet Arsenal, 925-hp. motor; De La Vergne Machine Company, New York, 110-kw. generator; Shelby Steel Tube Company, Ellwood, Pa., four 12½-hp. motors; Chase Rolling Mills, Waterbury, Conn., 150-kw. engine type generator, driven by Skinner engine; Chicago, Indiana & Southern Railway Company, two 100-kw. generators and two 6½-kw. generators; Eastman Kodak Company, Rochester, N. Y., 300-kw. generator; Borough of Keltztown, Pa., one 75-kw. generator.

Foundries.

The York Mfg. Company, York, Pa., is adding to its plant a one-story concrete, brick and steel foundry building 60 x 800 ft.

The Henry J. Miller Brick Machine Company, Lancaster, Pa., is about to erect a new foundry for its casting and molding departments. The building will be 80 x 240 ft.

The Sheffield Stove & Foundry Company, Sheffield, Ala., is in the market for such foundry machinery as tumblers, emery stands, drill presses, stove patterns, &c. Second-hand machinery if in good condition will be acceptable.

The Smith's Falls Malleable Castings Company, Limited, Smith's Falls, Ont., has purchased a site, with ample frontage on Rideau River, containing about 12 acres, upon which it will build a plant to duplicate its present one and will equip it with the best machinery for the production of malleable and steel castings. Several hundred additional hands will be employed. William H. Frost is president.

The Paul-Luttman Company has incorporated at Menasha, Wis., to operate a foundry. The capital stock is $15,000 and the incorporators are Arthur D. Paul, John W. Luttman and W. L. Wheeler.

The Johnstown Foundry, Machine & Car Company has been bought by George P. Suppes of Johnstown, Pa., and it will be enlarged, the new name being the Suppes Forge & Foundry Company.

Frank M. McGinty, of Alliance, Ohio, and a number of Pittsburgh capitalists are considering building a steel castings plant at Alliance, Salem or Minerva, Ohio. The promoters have had plans for the buildings drawn and ask the town in which they will locate to donate the site. According to the plans there will be four buildings erected at once at a cost including the equipment of $160,000, and employment will be given to 400 men. The plant will have a capacity of 1200 tons of finished steel castings per month.

Bridges and Buildings.

The Strobel Steel Construction Company, Chicago, has been awarded a contract at $115,300 for the construction of a bascule bridge over the North Menominee Canal at Sixth street, Milwaukee. About 750 tons of steel are required in the structure.

The Thomas Construction Company, Niles, Ohio, has not yet decided upon a site for its new plant, but will probably do so very soon. Plans for the new works are about ready and the company will ask for bids on its buildings and equipment within a short time.

Fires.

The plant of the Lumbermen's Tool Company and the Wellman electric light plant at South Boardman, Mich., were burned September 25. The loss is placed at $50,000.

The branch plant of the Springfield Foundry Company, Springfield, Mass., was damaged $7000 by fire last week. Plans for rebuilding have not yet been prepared.

The Abraham Cox Stove Works, Philadelphia, Pa., was damaged $8000 by fire September 26.

The foundry of James Millard, Kingston, N. Y., was destroyed by fire September 25, the loss being $5000.

Hardware.

The Forsyth Mfg. Company, Buffalo, N. Y., manufacturer of bicycle parts and specialties, has purchased a site for a new and larger factory, the plans for which are nearly completed.

The St. Louis Hardware Mfg. Company, St. Louis, Mo., has incorporated with a capital stock of $10,000. F. Henry Koch is proprietor and is located at 1514-1516 O'Fallon street. A line of hardware specialties and novelties will be manufactured.

F. V. McLanathan, Lawrence, Mass., manufacturer of leather belting, is to erect a new factory in that city, 35 x 60 ft., one story and basement. No new machinery will be required, as present equipment will meet all needs.

Charles Niedner, James street, Malden, Mass., manufacturer of fire hose, will erect an addition to his plant, 47 x 60 ft. and four stories. New boilers will be installed, together with new machinery, which Mr. Niedner will build for himself.

The Graton & Knight Mfg. Company, Worcester, Mass., manufacturer of leather belting, is to erect a new building, to be five stories and basement and 80 x 140 ft. It will be devoted to a general increase of the company's manufacturing facilities.

A half interest in the business of the Portland Wire & Iron Works, Portland, Ore., has been sold by C. W. Boost to E. C. Comstock, and articles of incorporation have been filed, the capital stock being $25,000. Bank, store and office railing and ornamental iron work of all kinds is manufactured, and the company has purchased a quarter block more land on which to extend the business.

Business with the Henry Cheney Hammer Company, Little Falls, N. Y., has so far outgrown the accommodations of the present plant that the erection of an addition has been decided upon. The new building will be about 32 x 50 ft., three stories high, and will be of brick, with first floor of stone and steel.

The Star Mfg. Company, Carpentersville, Ill., manufacturer of equalizers, feed cutting, corn husking and shelling machinery, plowshares, wrenches, &c., has again found it necessary to enlarge its plant. The entire forging department is to be collected under a modern steel roof with tile covering, and new machinery is being installed which will increase the output of some lines about 200 per cent. These improvements will also facilitate the handling and insure a larger output of other lines, but the company has reason to believe that its facilities will be no more than adequate to fill the orders which will be booked for the coming season. Especially encouraging to the company is the increasing volume of its export trade.

The New Haven Shade Roller Company, New Haven, Conn., has been incorporated in Connecticut to manufacture a patent shade roller and other light hardware novelties. The capital stock is $15,000. The company will conduct the business recently established as the Bulley & Downs Company. The incorporators are Louis T. Bulley, A. Z. Downs, V. H. Perry, C. A. Dreisbach and James E. Downs.

The Springfield Woven Belting Company, Springfield, Mass., has been organized under Massachusetts laws to take over the business of the American Woven Belting Company of that city. The officers are: President, Gustave C. Henking; treasurer and clerk, Myron P. Walker; directors, these officers and F. D. Walker.

Miscellaneous.

The Otto Zobler Mfg. Company, Chicago, has incorporated with a capital of $25,000 and will manufacture articles of all kinds of sheet metal, such as tanks, kettles, coolers, heaters, vacuum pans, coils and stills. The company will move to its new factory at the corner of Warsaw and Rockwell streets by the end of the present year. Otto Zobler is proprietor.

The Zunner Construction & Equipment Company has been incorporated at Rochester, N. Y., with a capital stock of $10,000, by J. Zunner, W. Stacy and J. B. Gatenbee, to manufacture patented articles.

The Breiding Gas Machine Company, Sterling, Ill., has incorporated with a capital stock of $10,000 and a permanent organization effected by the election of the following officers: President, J. H. Baer; vice-president, Dr. S. S. Kehr, and secretary and treasurer, W. W. Haskell. A. W. Breiding, the inventor of the gas machine which will be manufactured, was appointed superintendent and will have charge of manufacturing operations. The company is now engaged in remodeling the Gaines Building, on East Third street, which it will occupy.

The Auto Pump Company has been incorporated at Springville, N. Y., with a capital stock of $10,000, to manufacture automobile pumps, &c., by R. B. Waite, S. E. Spencer and J. Shultes.

The business of F. S. Payne, 295 Franklin street, Boston, dealer in elevators and elevator supplies, has been incorporated as the F. S. Payne Company, with $25,000 capital stock and these officers: President and treasurer, Fred. S. Payne; clerk, Frederick A. Smith; directors, these officers and H. A. Gilson.

The Lake Torpedo Boat Company, Bridgeport, Conn., builder of submarine boats, has increased its capital stock from $1,000,000 to $2,000,000, the purpose of the new stock being to acquire the foreign rights which are controlled by Capt. Simon Lake, the inventor of the submarine, and others. This move will give the company the right to sell its boats to foreign powers, and the statement is made that the outlook for business of this description is very bright.

The Unique Stove Company, 19 Portland street, Worcester, Mass., which will manufacture a cooking range in which is contained an automatic ash sifter, has so far progressed in the construction of its works at Millbury, Mass., that it hopes to be manufacturing for the market before the New Year. Everything is ready excepting the foundry cupola, and as soon as this is installed the work of manufacturing will begin. The officers of the company are: President, Eli Belisle; secretary, John B. Lamotte, and treasurer, Joseph G. Lamotte. James E. L. Tood of Worcester, recently with the Edwin Hawes Company, will be the sales agent.

The Davis Mfg. Company, Milwaukee, Wis., has recently received contracts for installing steel bins at the plants of Bridgman Bros. Company and Schutte & Koerting, both of Philadelphia, and of the Virginia Portland Cement Company, Fordwick, Va.

The Ornamental Bronze & Plate Company, Kingston, N. Y., has incorporated with a capital stock of $50,000 and has purchased the plant in that city of the Colonial Bronze & Silver Company, in which it is manufacturing art metal work. Albert H. Stephens is president and treasurer, George C. Hatch vice-president, and Nelson B. Hatch secretary.

The Utica Engine Stop Company, Utica, N. Y., recently incorporated, is manufacturing an engine stop and speed limit device. At the present time the company has sufficient quarters, but expects before long to enlarge its business and perhaps build a plant. Chester W. Davis is president, Harry M. Martyn vice-president and secretary, and William J. Foley treasurer.

The Engineering Appliance Company, Watervliet, N. Y., recently incorporated, has leased a completely equipped shop where it will manufacture low and high potential oil switches, lightning arresters and oil cushions, and in addition will carry on an electric, hydraulic and mechanical engineering business. Theodore F. Kalbfleisch is president, Raoul W. Baker vice-president, U. W. Frink secretary, and Theodore F. Kalbfleisch, Jr., treasurer.

The United States Specialty Mfg. Company has been organized by C. H. Prescott and S. S. McCurdy of East Liverpool, Ohio, for the manufacture of a device for blowing soot and other accumulations through the tubes of a boiler up the stack. The blower blows with the draft, and it is claimed cleans the boiler tubes perfectly. It has been applied to the plant of the American Sewer Pipe Company at New Brighton, Pa., where it is giving good satisfaction.

Hey & Co., the Genesee Metal Works and Hazard, Coates & Co., Rochester, N. Y., have consolidated under the title of the Hazard, Coates & Bennett Company, in order to provide increased manufacturing facilities. The company has just completed the erection of a new metal smelting and refining plant equipped with modern machinery and a warehouse having 30,000 sq. ft. of floor space. These two buildings with the iron yard adjoining cover 9 acres, all equipped with railroad tracks and every convenience in the way of handling material. The company will maintain its warehouses at 423 to 429 State street and 37 to 47 Frankfort street. E. C. Hey is president; John Bennett, vice-president; C. E. West, secretary; George R. Coates, treasurer, and F. W. Reidenbach, superintendent of smelting plant.

The American Metallurgical Works, Phœnixville, Pa., manufacturer of tungsten, ferrotungsten, ferrochromium, Wolfram ore, &c., is retiring from business and offers its plant for sale.

The Standard Steel Car Company, Butler, Pa., has completed surveys and has had plans prepared for the erection of a large passenger car plant for the manufacture of steel passenger coaches. Work will be started in the near future, and it is the hope of the management that the plant will be in operation before cold weather sets in. Several hundred men will be given employment.

The Electrical Railway Equipment Company, Cincinnati, Ohio, has purchased a site of 3 acres at Riverside, near Bellaire, Ohio, and will start the erection of a modern plant for the manufacture of electrical equipment. A building 25 x 250 ft. will be built at once. W. B. Stout is general superintendent.

The LaBelle Iron Works, Steubenville, Ohio, has decided to make some extensive additions to its plant. These will consist of a three-high 72-in. plate mill, 60-in. jobbing mill, 54-in. jobbing mill, two 48-in. jobbing mills and six 38-in. sheet mills. Bids for the buildings and for these mills will be asked for in a short time. A quarterly dividend of 2 per cent. has been declared, payable November 1. The directors have appointed a committee to confer with a committee from the Wheeling Steel & Iron Company relative to a proposed merger.

The University of Pennsylvania has sent out invitations to the dedication of its new engineering building in West Philadelphia on October 19.

The Iron and Metal Trades

The Pig Iron market has made further progress upward, with no indications that the advance has reached its limit. Heavy buying of Basic Iron in the East is the feature, and fully 60,000 tons has been taken at $1 to $1.50 above the final prices in the July movement in Basic, when the total reached 250,000 tons. From 30,000 to 40,000 tons of the recent purchases was for the first quarter of 1907, largely for delivery at Pencoyd, Pa. Further business for Eastern Basic Steel works is pending.

In Foundry Iron the situation shows increasing feverishness. The demand for early shipments continues on a scale indicating that many melters are failing to get sufficient Iron from usual sources to meet their requirements. Prices paid in such cases are coming steadily nearer to the basis of 1902. Eastern Iron is going to Central Western points and *vice versa*, and the high freights paid on these cross shipments are proof of an urgency that has not existed hitherto. Forge Iron as well as Foundry has advanced sharply on such sales. Only moderate buying is reported for next year.

More is heard of negotiations for imports, both of Scotch and Middlesboro Irons, and further shipments of British Low Phosphorus Iron are on the way. It is questionable if foreign shipments can be made promptly enough to be of great avail, and opinion is divided as to the later need of importations.

The United States Steel Corporation had 96¾ per cent. of its blast furnaces in operation on October 1, the four idle furnaces being of less than the average capacity. October is counted on to make a new record in the corporation's Pig Iron production. Significant of the judgment of the leading interest as to the duration of prosperity is the announcement that work will be started soon on three or four new blast furnaces in the Pittsburgh District, probably at the Duquesne and Donora plants. Thirty 50-ton open hearth furnaces will be built, chiefly in the Pittsburgh District and probably in part in the Cleveland District.

The situation in finished material is best shown in an average of 68,000 tons a day booked by the Steel Corporation in September, while shipments averaged 32,000 tons a day. The record of new business is without a parallel and all lines contributed. The exports of the corporation in Plates, Structural Material and Wire Products have kept up well. September export orders in Wire were particularly large.

Among Rail orders the largest is approximately 25,000 tons additional for the Erie, which had already placed 38,000 tons for 1907. Foreign inquiries include 20,000 tons for the Philippines.

Plate mill order books have been filling up in recent weeks. In Bars the list of mills asking the advance is increasing.

In the Chicago District the handicap of car shortage is such that uneasiness exists as to the situation later, when the winter embargo begins.

Documentary details growing out of the numerous leases involved are now the sole cause of delay in the announcement of the Hill Ore deal.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

	Oct. 3, 1906.	Sept. 26, 1906.	Sept. 5, 1906.	Oct. 4, 1905.
PIG IRON, Per Gross Ton:				
Foundry No. 2, Standard, Philadelphia	**$21.00**	$20.50	$20.25	$17.00
Foundry No. 2, Southern, Cincinnati	**19.50**	19.00	18.50	15.00
Foundry No. 2, Local, Chicago	**20.50**	20.00	19.75	16.75
Bessemer, Pittsburgh	**19.85**	19.60	19.35	16.35
Gray Forge, Pittsburgh	**18.35**	17.85	17.35	15.35
Lake Superior Charcoal, Chicago	**21.00**	20.50	20.00	17.50
BILLETS, &c., Per Gross Ton:				
Bessemer Billets, Pittsburgh	28.00	28.00	28.00	25.50
Forging Billets, Pittsburgh	34.00	34.00	34.00	29.00
Open Hearth Billets, Phila	**32.00**	32.00	30.00	28.00
Wire Rods, Pittsburgh	34.00	34.00	34.00	31.50
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00
OLD MATERIAL, Per Gross Ton:				
O. Steel Rails, Chicago	**17.00**	17.00	16.50	14.50
O. Steel Rails, Philadelphia	**18.50**	18.50	18.00	16.50
O. Iron Rails, Chicago	**23.50**	23.50	23.50	22.00
O. Iron Rails, Philadelphia	**25.00**	25.00	24.00	22.00
O. Car Wheels, Chicago	*19.00*	19.00	20.00	16.00
O. Car Wheels, Philadelphia	**20.75**	19.00	17.50	15.50
Heavy Steel Scrap, Pittsburgh	**17.50**	17.50	16.75	16.50
Heavy Steel Scrap, Chicago	16.50	16.50	16.50	14.50
FINISHED IRON AND STEEL, Per Pound:	Cents.	Cents.	Cents.	Cents.
Refined Iron Bars, Philadelphia	**1.83½**	1.83½	1.63½	1.73½
Common Iron Bars, Chicago	1.71½	1.71½	1.71½	1.70
Common Iron Bars, Pittsburgh	**1.60**	1.60	1.50	1.74¾
Steel Bars, Tidewater, New York	1.64½	1.64½	1.64½	1.64½
Steel Bars, Pittsburgh	1.50	1.50	1.50	1.50
Tank Plates, Tidewater, New York	1.74½	1.74½	1.74½	1.74½
Tank Plates, Pittsburgh	1.60	1.60	1.60	1.60
Beams, Tidewater, New York	1.84½	1.84½	1.84½	1.89½
Beams, Pittsburgh	1.70	1.70	1.70	1.70
Angles, Tidewater, New York	1.84½	1.84½	1.84½	1.89½
Angles, Pittsburgh	1.70	1.70	1.70	1.70
Skelp, Grooved Steel, Pittsburgh	1.57½	1.57½	1.57½	1.50
Skelp, Sheared Steel, Pittsburgh	1.60	1.60	1.60	1.55
SHEETS, NAILS AND WIRE, Per Pound:	Cents.	Cents.	Cents.	Cents.
Sheets, No. 27, Pittsburgh	2.40	2.40	2.40	2.20
Wire Nails, Pittsburgh	1.85	1.85	1.85	1.80
Cut Nails, Pittsburgh	**1.90**	1.90	1.75	1.65
Barb Wire, Galv., Pittsburgh	2.30	2.30	2.30	2.25
METALS, Per Pound:	Cents.	Cents.	Cents.	Cents.
Lake Copper, New York	**21.00**	20.00	18.87½	16.62½
Spelter, St. Louis	**6.15**	6.25	5.90	5.85
Lead, New York	**6.00**	5.95	5.85	4.85
Lead, St. Louis	**5.80**	5.85	5.75	4.82½
Tin, New York	**42.45**	40.00	40.60	32.50
Antimony, Hallett, New York	24.00	24.00	24.00	12.50
Nickel, New York	45.00	45.00	45.00	40.00
Tin Plate, Domestic, Bessemer, 100 lb., New York	$3.94	$3.94	$3.94	$3.74

Chicago.

FISHER BUILDING, October 3, 1906.—(*By Telegraph.*)

The constantly increasing pressure on the mills for materials is reflected in the growing accumulation of live specifications on the order books of practically all products, and with the consumption greatly in excess of production deliveries are being further deferred. On October 1 the Illinois Steel Company's specifications reached a total of 432,000 tons, an increase of 8000 tons in seven days. This tonnage represents three months' output of all of the company's mills, and on certain sizes of Steel Bars shipments cannot be made in less than four months. The advent of cooler weather will, however, materially aid operations, and an increase in the production of all commodities is anticipated. New tonnage in all finished lines is comparatively light, and the decline in the demand for Structural Shapes for building purposes which is customary at this season has been more than overcome by the increased requirements of car works. To a limited extent Steel Bar tonnage is being diverted to the Iron mills, and this movement will become more pronounced as the season advances. Tentative offers on foreign Axle Billets have been made by local consumers, who are fearing a shortage and have been unsuccessful in securing material from domestic mills. Imported Steel for Axle purposes can be laid down in this market at approximately $35, but this price is considered too high, notwithstanding the shortage. Another contract for 500 tons of Shapes has been received from San Francisco, and New Orleans contributes 350 tons.

Pig Iron.—The Iron market continues its upward movement, despite the limited demand, and further advances have been recorded on Southern grades for delivery the remainder of the year. We note the sale of 1500 tons of No. 2 for October, November and December shipment at $17, Birmingham, while carload lots on track have sold as high as $17.50.

For delivery through the first half of next year prices range from $15.50 to $15.75, although sales are reported at $15. The largest sale of the week specified 6000 tons, running through the first half of the year, the grades being largely Southern. Northern grades for 1907 delivery have strengthened and are now held at a minimum of $20, f.o.b. furnace, equivalent to $20.50, Chicago. For early delivery, $21 to $21.50 is asked. Quotations on High Silicon grades given below are merely nominal, as Ohio and Kentucky operators have withdrawn their prices. Owing to the high prices prevailing for Cast Scrap, there is an unusually heavy demand for the lower grades of Foundry Iron. The Iron production at local steel works has been increased by the blowing in of additional stacks, the Illinois Steel Company now having 20 of its 21 furnaces in operation. As soon as the furnace at the South Works, which is now being rebuilt, is placed in operation another will be placed on the idle list for repairs. The International Harvester Company has likewise blown in its idle furnace, repairs having been completed. We quote as follows, f.o.b. Chicago:

Lake Superior Charcoal	$21.00 to $21.50
Northern Coke Foundry, No. 1	21.00 to 21.50
Northern Coke Foundry, No. 2	20.50 to 21.00
Northern Coke Foundry, No. 3	20.00 to 20.50
Northern Scotch, No. 1	21.00 to 21.50
Ohio Strong Softeners, No. 1	21.30 to 21.80
Ohio Strong Softeners, No. 2	20.80 to 21.30
Southern Coke, No. 1	20.40 to 20.90
Southern Coke, No. 2	19 90 to 20.40
Southern Coke, No. 3	19.40 to 19.90
Southern Coke, No. 4	18.90 to 19.40
Southern Coke, No. 1 Soft	20.40 to 20.90
Southern Coke, No. 2 Soft	19.90 to 20.40
Southern Gray Forge	17.40 to 17.90
Southern Mottled	17.15 to 17.65
Malleable Bessemer	21.00 to 21.50
Standard Bessemer	20.80 to 21.30
Jackson Co. and Kentucky Silvery, 6 %	22.30 to 22.80
Jackson Co. and Kentucky Silvery, 8 %	23.30 to 23.80
Jackson Co. and Kentucky Silvery, 10 %	24.30 to 24.80

Metals.—Copper has not only reached the 20c. mark predicted some time ago, but is now 2¼c. higher than this point, and prices are still advancing. Practically no Copper is available for this year's delivery, and where obtainable costs the buyer a premium. Spelter has declined slightly, while Lead is also weaker. We quote: Casting Copper, 22¼c. to 22½c.; Lake, 22½c. to 22¾c., in car lots; small lots, ¼c. to ⅜c. higher; Pig Tin, carloads, 43.35c.; small lots, 44c. to 44¼c.; Spelter, prompt delivery, 6.30c. to 6.40c., for car lots; Lead, desilvered, 5.97½c. to 6c., for 50-ton lots; Corroding, 6.67½c. to 6.77½c., for 50-ton lots; on car lots, 2¼c. per 100 lb. higher; Cookson's Antimony, 28c., and other grades, 26c. to 27c.; Sheet Zinc is 7.75c. list, f.o.b. Lasalle, in car lots of 60-lb. casks. On Old Metals we quote: Copper Wire, 17½c.; Heavy Copper, 17¼c.; Copper Bottoms, 16½c.; Copper Clips, 17¼c.; Red Brass, 16¼c.; Red Brass Borings, 13¼c.; Yellow Brass, 12¼c.; Yellow Brass Borings, 11¼c.; Light Brass, 8¾c.; Lead Pipe, 5.40c.; Tea Lead, 5c.; Zinc, 5c.; Pewter, No. 1, 26c.; Tin Foil, 32c.; Block Tin Pipe, 27½c.

(*By Mail.*)

Billets and Rods.—The Union Pacific Railroad has up to the present time been unable to place its contract for 14,500 tons of Billets with any of the mills in this country and it is probable that the company will purchase its Tie Plates, for which the Steel was desired, from a local producer. The other two large inquiries noted in our last report have not yet developed into contracts, as none of the mills is in position to make shipment before the first of the year. Specifications for Wire and Chain Rods are exceedingly heavy on contracts placed during August and September. We quote Forging Billets at $36 to $37 in carload lots, and Bessemer and Open Hearth Rods are held on the same basis.

Rails and Track Supplies.—During the month of September the Rail tonnage of the Illinois Steel Company was greatly curtailed, owing to the hot weather. Every effort will be made this month to increase the output, as the pressure on the mill for material for delivery the remainder of this year is greater than ever before. The new tonnage, however, is exceedingly light, although considerable new business is being placed for Track Material. Quotations are as follows: Angle Bars, accompanying Rail orders, 1906 delivery, 1.50c.; carload lots, 1.75c.; Spikes, 2.27½c. to 2.50c., according to delivery; Track Bolts, 2.65c. to 2.75c., base, Square Nuts, and 2.80c. to 2.90c., base, Hexagon Nuts. The store prices on Track Supplies range from 0.15c. to 0.20c. above mill prices. Light Rails, 30 to 45 lb. sections, $29 to $30; 25-lb., $31; 20-lb., $32; 16-lb., $33; 12-lb., $34, f.o.b. mill. Standard Sections, $28, f.o.b. mill, full freight to destination.

Structural Material.—The contract for 500 tons of Steel for another building at San Francisco has been placed with the American Bridge Company, as well as 350 tons for a library at New Orleans. Specifications from car builders are growing heavier daily, and at the present time the requirements of this industry are greater than in any other line. The new mill of the Illinois Steel Company has started out for a high record this month, aiming to produce 20,000 tons, the previous high record being close to 16,000 tons. While the structural mills are generally close to specifications, there is no dearth of tonnage. Local distributers are quoting 2.05c. to 2.10c. on material cut to length from stock and report the movement of a fair tonnage. Mill quotation are unchanged, as follows: Beams and Channels, 3 to 15 in., inclusive, 1.86½c.; Angles, 3 to 6 in., ¼-in. and heavier, 1.86½c.; larger than 6 in. on one or both legs, 1.96½c.; Beams, larger than 15 in., 1.96½c.; Zees, 3 in. and over, 1.86½c.; Tees, 3 in. and over, 1.91½c., in addition to the usual extras for cutting to extra lengths, punching, coping, bending and other shop work.

Plates.—Western Plate mills are gradually falling further behind on delivery of both Universal and Sheared sizes, specifications from shipbuilders and car works showing a big increase in the past few days. Prices are well maintained, as follows: Tank Plates, ¼-in. and heavier, wider than 6¼ and up to 100 in. wide, inclusive, car lots, Chicago, 1.76½c.; 3-16 in., 1.86½c.; Nos. 7 and 8 gauge, 1.91½c.; No. 9, 2.01½c.; Flange quality, in widths up to 100 in., 1.86½c., base, for ¼ in. and heavier, with the same advance for lighter weights; Sketch Plates, Tank quality, 1.86½c.; Flange quality, 1.96½c. Store prices on Plates are as follows: Tank Plate, ¼-in. and heavier, up to 72 in. wide, 2c. to 2.10c.; from 72 to 96 in. wide, 2.10c. to 2.20c.; 3-16 in., up to 60 in. wide, 2.10c. to 2.20c.; 72 in. wide, 2.35c. to 2.45c.; No. 8, up to 60 in. wide, 2.15c. to 2.25c.; Flange and Head quality, 0.25c. extra.

Sheets.—Premiums of $1 a ton in some of the heavier gauges are still reported, although on some of the lighter gauges of Black Sheets competition seems to be keen and there is a tendency on the part of a few producers to shade prices. Specifications on existing contracts show no decline and generally exceed mill capacity. Quotations are unchanged, as follows: Blue Annealed, No. 10, 1.91½c.; No. 12, 1.96½c.; No. 14, 2.01½c.; No. 16, 2.11½c.; Box Annealed, Nos. 17 to 21, 2.41½c.; Nos. 22 to 24, 2.46½c.; Nos. 25 and 26, 2.51½c.; No. 27, 2.56½c.; No. 28, 2.66½c.; No. 29, 2.81½c.; No. 30, 2.91½c. Galvanized Sheets, Nos. 10 to 14, 2.61½c.; Nos. 15 and 16, 2.81½c.; Nos. 17 to 21, 2.96½c.; Nos. 22 to 24, 3.11½c.; Nos. 25 and 26, 3.31½c.; No. 27, 3.51½c.; No. 28, 3.71½c.; No. 30, 4.21½c. Sheets from store: Blue Annealed, No. 12, 2.15c. to 2.25c.; No. 14, 2.20c. to 2.30c.; No. 16, 2.30c. to 2.40c.; Box Annealed, Nos. 18 to 20, 2.60c. to 2.70c.; Nos. 22 to 24, 2.65c. to 2.75c.; No. 26, 2.70c. to 2.80c.; No. 28, 2.85c. to 2.95c.; No. 30, 3.25c. to 3.35c. Galvanized from store: Nos. 10 to 20, 3.10c. to 3.20c.; Nos. 22 to 24, 3.35c. to 3.45c.; No. 26, 3.45c. to 3.55c.; No. 27, 3.55c. to 3.75c.; No. 28, 3.85c. to 3.95c.; No. 30, 4.45c. to 4.55c.

Bars.—The constantly growing requirements of the Western implement works for Steel Bars is increasing the pressure on the mills and deliveries are being further deferred from day to day. On some of the more ordinary sizes one maker is unable to make shipment in less than four months, although the Western jobbing mills are in a position to make shipments in from three to four weeks. It is already apparent that a large tonnage of Bars will be diverted to the Iron mills on account of the inability of the Steel mills to make the required deliveries, and this condition already prevails to a limited extent. We quote as follows: Iron Bars, 1.71½c.; Steel Bars, 1.66½c. to 1.76½c., both half extras; Hoops, 2.06½c., extras as per Hoop card; Bands, 1.66½c. as per Steel card; Soft Steel Angles and Shapes, 1.66½c., half extras. Store prices are as follows: Bar Iron, 2.10c.; Steel Bars, 1.85c., and as high as 2c. is asked on certain scarce sizes; Steel Bands, 1.85c. to 1.90c., half extras; Soft Steel Hoops, 2.30c. to 2.40c., full extras.

Merchant Pipe.—That the consumption throughout the West is greater than anticipated by the large distributers is indicated by the frequent filling-in orders that are being received by the mills. Notwithstanding the extremely low basis that has been prevailing there is practically no speculative buying and concessions generally have been withdrawn. Sales are made on the basis of 81 and 5 off the list, Pittsburgh, and discounts in car lots, Chicago, are as follows: Black Steel Pipe, 79.35 per cent. on the base sizes, ¾ to 6 in., and Galvanized, 69.35 per cent. Iron Pipe is quoted from 1½ to 2 points higher. From store in small lots Chicago jobbers are quoting 76½ to 77 per cent. on Black Steel Pipe, ¾ to 6 in.

Boiler Tubes.—New tonnage continues light, as the tonnage for fall requirements was covered earlier in the year. Local distributers, however, report a continued heavy movement, and prices are being well maintained. Mill quotations are well maintained, as follows, on base sizes, 2¾ to 5 in., in car lots: Steel Tubes, 68.35; Iron, 55.35; Seamless, 50.35; 2½ in. and smaller and lengths over 18 ft., and 2½ in. and lengths over 22 ft., 10 per cent. extra. Store prices are unchanged, as follows:

	Steel.	Iron.	Seamless.
1 to 1½ in.	40	35	42½
1¾ to 2¼ in.	50	35	35
2½ in.	52½	35	30
2¾ to 5 in.	60	47½	42½
6 in. and larger	50	35	..

Merchant Steel.—The Shafting market has developed increased strength during the week, and discounts are now being better maintained than at any time this year. This is due to the heavy specifications that the Shafting manufacturers are receiving from the implement and machinery trades. Quotations generally are well maintained on the following basis: Planished or Smooth Finished Tire Steel, 1.86½c.; Iron Finish, up to 1½ x ½ in., 1.81½c.; Iron Finish, 1½ x ½ in. and larger, 1.66½c., base; Channels for solid rubber Tires, ¾ to 1 in., 2.16½c., and 1⅛-in. and larger, 2.06½c.; Smooth Finished Machinery Steel, 1.91½c.; Flat Sleigh Shoe, 1.71½c.; Concave and Convex Sleigh Shoe, 1.96½c.; Cutter Shoe, 2.35c.; Toe Calk Steel, 2.21½c.; Railway Spring, 1.86½c.; Crucible Tool Steel, 6½c. to 8c., and still higher prices are asked on special grades. Shafting, 50 per cent. off in car lots and 45 per cent. in less than car lots, in base territory.

Cast Iron Pipe.—Practically all of the contracts for Pipe for municipal work for installation this year have been let, and with the exception of the 1907 Kansas City requirements no future buying has yet been contemplated. On the smaller sizes shipments of new orders cannot be made before January, although on the larger sizes, such as 60 and 72 in., deliveries can be made in four to five weeks. We make the following quotations: Water Pipe, 4 in., $34; 6, 8, 10 and 12 in., $33; over 12 in., $32, with $1 extra for Gas Pipe.

Coke.—Increased activity of Furnace Coke, due to the efforts of operators to cover their 1907 requirements, is reflected in the Foundry grades, which have advanced from 15c. to 25c. a ton during the week. It is reported that furnace operators are placing contracts for their next year's requirements on the basis of $3, Connellsville, and as a result Coke makers have advanced quotations on the 72-hour product to $3.50 to $3.75 at the ovens, equivalent to $6.15 to $6.40, Chicago. Virginia operators have likewise advanced prices and are now quoting $5.75 to $6, Chicago. Producers of By-Product Coke are asking $6.15 to $6.25.

Old Material.—There appears to be no uniformity in the general movement of the various grades of Old Material, some of the grades being held at prices out of proportion with the material, for which the demand is not so heavy. Iron Rails are still held on the basis of $25.50 to $26 and are exceedingly scarce, while No. 1 Railroad Wrought Scrap has advanced to $17.50. Cast Scrap has likewise advanced, owing to heavy purchases made by a local foundry interest, aggregating approximately 3000 tons. On October 9 the Baltimore & Ohio Railroad will dispose of 4500 tons of material, 1500 tons of which are Steel Rails in lengths of 6 ft. and over. Quotations on gross tons, car lots, f.o.b. Chicago, are as follows:

Old Iron Rails	$25.50 to $26.00
Old Steel Rails, 4 ft. and over	18.00 to 18.50
Old Steel Rails, less than 4 ft.	17.00 to 17.50
Heavy Relaying Rails, subject to inspection, 50 lb. and under	28.50 to 29.00
Old Car Wheels	19.00 to 19.50
Heavy Melting Steel Scrap	16.50 to 17.00
Frogs, Switches and Guards	17.00 to 17.25
Mixed Steel	14.00 to 14.50

The following quotations are per net ton:

Iron Fish Plates	$20.00 to $20.50
Iron Car Axles	25.00 to 25.50
Steel Car Axles	20.50 to 21.00
No. 1 Railroad Wrought	17.50 to 17.75
No. 2 Railroad Wrought	16.50 to 16.75
Railway Springs	15.50 to 16.00
Locomotive Tires, smooth	16.00 to 16.50
No. 1 Dealers' Forge	13.50 to 14.00
Mixed Busheling	11.00 to 11.50
Iron Axle Turnings	11.00 to 11.25
Soft Steel Axle Turnings	11.00 to 11.25
Machine Shop Turnings	11.00 to 11.25
Cast Borings	8.50 to 9.00
Mixed Borings, &c.	8.50 to 9.00
No. 1 Mill	10.00 to 10.50
No. 2 Mill	9.00 to 9.50
No. 1 Boilers, cut to Sheets and Rings	11.00 to 11.50
No. 1 Cast Scrap	15.50 to 16.00
Stove Plate and Light Cast Scrap	12.50 to 13.00
Railroad Malleable	15.00 to 15.50
Agricultural Malleable	14.50 to 15.00

Birmingham.

BIRMINGHAM, ALA., September 29, 1906.

Pig Iron.—There has been little doing in the Iron market the past week. Prices which have prevailed during the last month are still ruling, but sales have dropped off materially. Some of the furnace companies here state they have withdrawn from the market, but as this is a habit they have when things are dull, it carries no special significance. For spot shipment the producers are asking from $16.50 to $17, and for delivery during the first half of 1907 from $15 to $16 on a No. 2 Foundry basis. Some of the furnaces are willing to book all the tonnage desired for this latter delivery on a $15 basis for the lower grades, but on Nos. 1 and 2 are asking a premium of 50 cents per ton. It would seem that a large percentage of those who usually contract for their requirements in advance have placed their orders, and that the next three months will be comparatively dull. Whether or not prevailing prices can be maintained depends largely on the production for the next few months, as it is now pretty generally established that there will be no shortage of any moment this year, and the excitement of buyers and their determination to cover for their requirements have only had the effect of advancing prices on themselves. In regard to prices for next year authorities are about evenly divided as to whether the present prices will rule, or there will be a decline. Few are of the opinion that there will be any further advance.

The storm which prevailed here for two days the past week flooded alomst every limestone and dolomite quarry in the district, and as the stock of this material is very short at all furnaces, it is probable that a few stacks may have to suspend operations until the water can be pumped out.

The Quinn Furnace Company has started its charcoal furnace at Gadsden. The demand for this grade of Iron is excellent, and the three stacks now running in this State are understood to have order books well filled for several months ahead. Chilling grades are readily bringing $22.50 at furnace.

Cast Iron Pipe.—The general condition of the market is unchanged. New business for small tonnage is being placed every week, which just about equals the output and prevents the foundries from making any gain on orders booked. On No. 4 and 6 in. the manufacturers are booked until January and have only a small tonnage of larger sizes which could be shipped during the remaining months of this year. Prices on Water Pipe are approximately as follows: 4 to 6 in., $30; 8 to 12 in., $29; over 12 in., $27.50, with $1 per ton extra for Gas Pipe. On large contracts these prices might be slightly shaded, but on small orders a slight premium would probably be required.

Old Material.—The market is very active, with a tendency toward higher prices. Stocks have been considerably reduced within the past few weeks. Dealers' quotations are about as follows per gross ton, f.o.b. yards here:

Old Iron Rails	$19.50 to $20.00
Old Iron Axles	18.50 to 19.00
Old Steel Axles	16.00 to 17.00
Old Car Wheels	16.50 to 17.50
No. 1 Railroad Wrought	16.50 to 17.00
No. 2 Railroad Wrought	14.50 to 15.00
No. 1 Country Wrought	14.50 to 15.00
No. 2 Country Wrought	11.50 to 12.00
Wrought Pipe and Flues	11.50 to 12.00
Railroad Malleable	13.00 to 13.50
No. 1 Steel	13.00 to 13.50
No. 1 Machinery Cast	13.50 to 14.00
Stove Plate and Light Cast	10.00 to 10.25
Cast Borings	7.00 to 7.50

Philadelphia.

REAL ESTATE TRUST BUILDING, October 2, 1906.

The Iron and Steel markets have developed increased strength, and as regards Pig Iron prices are a trifle higher than they were a week ago. It cannot be said that the tonnage is extraordinary, although after the enormous business during August and September it is surprising that anything should be wanted. There is, however, such an undertone of strength that whenever there is a little slackening in one direction something bobs up at another point, which carries the average of prices to a higher level than before. It is an insidious kind of market, but so persistently strong that it is difficult to decide whether prices are going still higher or whether the strength is temporary and due to a few hungry buyers clamoring for the crumbs that fall from the master's table. But the renewed demand for Basic Iron and the advance in the prices for that grade suggest stronger conditions than were supposed to exist, so that it is perfectly clear that the alternative is larger supplies or higher prices. The former has been looked for during the past two or three months, but has not yet materialized, although there can be no doubt that every day brings relief somewhat nearer, but it is not in evidence yet, as far as spot Iron is concerned, so that it will be useless to look for lower prices until it becomes possible for a consumer to get material without begging for a quotation and then paying a dollar or two more to get the delivery. This is such an abnormal condition that it must come to an end sometime, if not very soon. The main reliance for relief is from an increased production, but this expectation has been so persistently disappointing that there may now be perhaps less confidence in its realization than the conditions actually warrant, but in any case it is merely a question of time and of quantity, neither of which can be estimated with much definiteness. One source of supply is likely to be drawn upon immediately in case prices manifest a further aggressive attitude, and that is from abroad. Scotch Iron can be laid down on dock, Atlantic ports, duty paid, at from $21.50 to $22.50, and would be quickly taken at better than these figures if it was immediately available. The importer would require some margin, but the $23 and $23.50 now paid for spot lots should be a fair inducement. If further advances are made in domestic Irons the inducement would be correspondingly increased, not only on Scotch Iron, but on Middlesbrough and other grades. There is not much prospect

for heavy shipments, but in a quiet way the problem is being worked out by shipments of a few lots to Atlantic ports, to see how much the market can take, and at what prices. The objection to this theory is that a demand from the United States would result in an immediate advance in British markets, but an advance of several shillings per ton has already been made, in anticipation of an American demand, and the chances are that if it does not materialize prices will drop back until they are low enough to attract business. This is precisely what happened a year ago, namely, an advance was made of six to nine shillings per ton, expecting an American demand, and fell right back when it failed to put in its appearance. British and American prices are so close to a parity that a slight change in either market would react on the other, and at the present high level of prices these markets act as a counterbalance, one against the other.

Pig Iron.—The market shows no signs of reaction, prices being a trifle higher than they were last week. This naturally indicates an enormous consumption, confidence in values, and some anxiety in regard to deliveries. A few find themselves compelled to buy for immediate shipments, but as the entire output is under contract it is almost impossible to get the deliveries required. Prices in such cases are abnormal, $23 to $23.50 being the usual rates when the Iron can be had. Forward deliveries are strong, and may be a trifle dearer than they were last week, but the demand has been pretty well satisfied, so that the tonnage in Foundry Irons has been comparatively light, although with so little for sale it bothers the sellers to know how they are going to deliver all they have sold without undertaking to deliver more. "Feverish" very properly defines the feeling as regards both buyers and sellers. The tension is as great, if not greater, this week than at any time since the movement began. This is unquestionably due to the uncertainty in regard to production. Makers have many problems to consider. The cost sheets are of unusual importance at this time, and as some of the Iron to be delivered during 1907 will be at less than $19, and a great deal at less than $20, the high prices of to-day are not quite as satsifying as they seem to be. On the other hand, if buyers make engagements at to-day's prices, and in consequence of larger production, or from any other cause, prices slip back to $20 or less, which would still be good prices, their position would not be satisfying either, so that it is no wonder that the feeling is feverish. There is hardly any doubt that a great more Iron will be made this quarter than ever before, and it is extremely probable that the first half of 1907 will also be a record breaker, but what the effect upon prices will be is not so certain, although that it would be repressive would be only natural. As far as regards the immediate market for next year's deliveries, prices are as strong as poison. Large sales have been made at $21.25 to $21.75 for No. 2 X, but with every sale there is less disposition to sell more, so that if further orders are placed they may have to be at higher figures than those named. Purchases of 60,000 tons of Basic Iron during the past few days have given a fresh impetus to the market and it looks very much as though prices were going higher, which conservative people greatly deplore. It is difficult to give exact prices, but the range for deliveries during 1907 to all points in eastern Pennsylvania and adjoining territories would be about as follows:

No. 1 X Foundry	$22.00 to $23.00
No. 2 X Foundry	21.00 to 21.75
No. 2 Plain	20.00 to 21.00
Standard Gray Forge	18.00 to 18.50
Ordinary Gray Forge	17.50 to 17.75
Basic	19.25 to 19.50
Low Phosphorus	25.00 to 26.00
Malleable	21.00 to 21.50

Pilling & Crane are now offering the Saxton Iron, the furnace being expected to be in operation before the end of the month.

Steel.—There is an extraordinary demand for Steel. Deliveries cannot be guaranteed inside 60 or 90 days, and for large tonnages still more leeway is required. Prices are quoted at $32 to $33 for ordinary Rolling Billets and $36 to $40 for Forging Billets.

Steel Alloys.—There is more business doing, but as a rule at lower prices. One sale of 80 per cent. Ferro for 1907 shipment is said to have been made at about $75, or for the last quarter, $85 to $90. The market is very irregular, however, but as a rule has a downward tendency.

Plates.—The demand is well up to the capacity of the mills, and prices are unchanged as folows:

	Carload. Cents.	Part carload. Cents.
Tank, Bridge and Boat Steel	1.73½	1.78½
Flange or Boiler Steel	1.83½	1.88½
Marine	2.13½	2.18½
Locomotive Firebox Steel	2.23½	2.28½

The above are base prices for ¼-in. and heavier. The following Extras apply:

	Extra per 100 pounds.
3-16-in. thick	$0.10
Nos. 7 and 8, B. W. G.	.15
No. 9, B. W. G.	.25
Plates over 100 to 110 in.	.05
Plates over 110 to 115 in.	.10
Plates over 115 to 120 in.	.15
Plates over 120 to 125 in.	.25
Plates over 125 to 130 in.	.50
Plates over 130 in.	1.00

Structural Material.—The volume of business is very large, but the capacity of the mills has increased to such an extent that there is little or no difficulty in arranging satisfactory deliveries. Prices are unchanged at 1.83½c. to 2c. for Beams, Angles and Channels, according to specifications.

Bars.—There is a good demand for Iron Bars and prices are very firm. Some desirable business has been taken a little under 1.83½c., but manufacturers are inclined to ask an advance on that figure, as the outlook is very favorable and cost of production steadily increasing. Steel Bars are nominally 1.73½c., but at that figure there is no certainty when deliveries can be had, so that for prompt shipments Iron and Steel Bars are about on a level, viz., 1.83½c. for carload lots, or 1.88½c. for smaller lots.

Sheets.—The demand is good and prices are firm as last quoted, but makers think they should get more money, in view of the increased cost. Meanwhile quotations are about as follows for mill shipments of carload lots, and a tenth more for broken lots: Nos. 18 to 20, 2.50c.; Nos. 22 to 24, 2.60c.; Nos. 25 and 26, 2.70c.; No. 27, 2.80c., and No. 28, 2.90c.

Old Material.—For the first time in several weeks it may be said that prices are no higher, and, as a rule, when this stage is reached a reaction more or less pronounced usually follows. For the present, however, bids and offers for deliveries in buyers' yards are about as follows:

Steel Crops	$18.50 to $19.00
No. 1 Steel Scrap	18.50 to 18.75
Low Phosphorus Scrap	23.00 to 23.50
Old Steel Axles	25.00 to 26.00
Old Iron Axles	31.00 to 31.50
Old Iron Rails	25.00 to 26.00
Old Car Wheels	20.75 to 21.25
Choice Scrap, R. R. No. 1 Wrought	22.50 to 23.00
Choice No. 1 Yard Scrap	19.00 to 20.00
Long and Short	18.00 to 18.50
Machinery Scrap	18.25 to 18.75
Wrought Iron Pipe	16.25 to 16.75
No. 1 Forge Fire Scrap	15.50 to 16.50
No. 2 Light Ordinary	11.50 to 12.00
Wrought Turnings	14.25 to 14.75
Axle Turnings, Choice Heavy	15.75 to 16.00
Stove Plate	14.00 to 14.50
Cast Borings	11.50 to 12.00

Cleveland.

CLEVELAND, OHIO, October 2, 1906.

Iron Ore.—Figures have not yet been compiled showing the movement down the lakes for September, but preliminary estimates have been made indicating a slight increase compared with September a year ago. This being the case, there is little possibility that the movement this season will fall short of 36,000,000 tons. This does not, as previously indicated, remove entirely the danger of an Ore shortage during the winter in certain sections. High grade Ores are still short, premiums being paid for prompt shipments. Owing to this fact the low grade Ores predominate to an unusual extent. The movement has been hampered somewhat recently by storms putting certain boats out of commission, lowering the water in the channels and at the docks and causing boats to lie at anchor waiting for the storms to blow over. At present the movement of other lake commodities is having the effect of withdrawing a certain percentage of the wild tonnage from the Ore trade. Enough is left, however, to take care of the customary October movement, and especially enough to move material under contract, upon which most reliance is placed at present. No sales of Ore have been reported here so far for 1907 delivery, although there is a growing belief that contracts will not be delayed long, since furnace interests have made such heavy sales that they will soon feel the necessity for a fresh supply of Ore. Wild rates remain firm at 75c. from the head of the lakes, 70c. from Marquette and 60c. from Escanaba.

Pig Iron.—Sales of Foundry Iron for first half of 1907 delivery have been so heavy that many of the furnaces are withdrawing from the market. They make the announcement they have sold as much Iron as they care to place under contract at present. Southern producers are taking about the same stand. Spot Iron from both sections is practically out of the question, except in driblets. One of the marked features of the present market is that furnaces have reserved certain portions of their Iron for regular customers, who have not yet covered their needs, which detracts somewhat from the indicated volume of sales to date. Cleveland furnaces are selling No. 2 Foundry on the basis of $19.25, delivered, while the Valley furnaces are holding for $18.50 at furnace for No. 2 for first half delivery. Spot Iron, in small lots, is being sold on the basis of $20 to $21, Valley furnace, for No. 2. Some of the Southern furnaces not yet sold up for first half are selling No. 2 high in phosphorus at $15.50, but many of them are holding for $16, Birmingham. To this is added $4.10 in freight rate to make up the Cleveland price. Some small lots of Southern No. 2 for spot shipment have been made at $17, Birmingham. Basic

is still strong, with a good, active demand, a very small supply for spot shipment and a limited amount for first half delivery. The ruling price is $18.75, Valley furnace, for first half delivery. Bessemer is in the same condition as to delivery and supply, but the price rules about $19, Valley furnace.

Coke.—The Coke market is exceptionally strong, especially as to Furnace Coke. Some big buying is reported, both for first half delivery and on contracts, through the entire year. The price rules about $3 at the oven, with the best grades of 72-hour Foundry Coke selling at $3.75 at the oven.

Finished Iron and Steel.—Mills generally are getting a little further behind with their deliveries. This statement applies on practically all commodities. Sheets are preeminently strong. There has been more or less trouble in getting Steel for the Sheet mills, but it cannot be learned that the shortage in that particular has caused any curtailment of production. The extraordinary demand, however, has put the mills behind in their orders and has strengthened the market. Prices have not been advanced, although the market is stronger. The principal business is done here out of stock. Prices are based on 2.15c. for No. 10 Blue Annealed; 2.80c. for No. 28 One Pass Cold Rolled, and 3.80c. for No. 28 Galvanized. Bar Iron is exceptionally strong at 1.70c., Pittsburgh, with some mills selling for quick shipment as high as 1.75c., Pittsburgh. The price of Scrap is a feature. No let-up has been reported in the demand for Forging Billets, and Rerolling Billets are scarce. Forging Billets are selling at $35 to $36 at mill, Pittsburgh. Mills are again falling behind their orders on Plates and Shapes. The report was current during the week that the American Shipbuilding Company intends to buy the Ship Owners' Dry Dock Company of Chicago, the transaction carrying with it the purchase of eight new boats by interests connected with the Dry Dock Company. On Saturday it was officially announced from the office of the American Shipbuilding Company that the deal has been declared off temporarily on account of premature and damaging publication of the plans. Unconfirmed but plausible rumors have been abroad during the week that two package freight lines on the lakes are figuring on the purchase of three new steamers. All boats now bought are for 1908 delivery, the yards being filled for 1907 delivery. The difficulty in getting Structural Shapes for immediate shipment is causing some buyers to patronize Eastern mills, paying a small premium.

Old Material.—Dealers are buying a good deal of Scrap, and while mills are also buyers they are not trading so heavily. The supply seems ample. Higher prices for Pig Iron have forced up some grades of Scrap. The following are dealers' prices to the trade, f.o.b. Cleveland, per gross ton: Old Steel Rails, $17 to $18; Old Iron Rails, $25 to $26; Iron Car Axles (nominal), $20 to $21; Heavy Melting Steel, $17 to $18. Per net ton: Cast Borings, $9 to $10, No. 1 Busheling, $15 to $15.50; No. 1 Railroad Wrought, $17 to $18; No. 1 Cast, $16; Iron and Steel Turnings and Drillings, $11 to $12.

Pittsburgh.

PARK BUILDING, October 3, 1906.—(*By Telegraph.*)

Pig Iron.—The market continues rather quiet, but prices are higher. There is some inquiry for small lots of Bessemer and Basic for prompt shipment, and we quote Bessemer for delivery this year at $19 to $19.25, Valley furnace, or $19.85 to $20.10, Pittsburgh. Sales of about 300 tons of Bessemer are reported at $19.85, Pittsburgh. Basic is very firm at $18.75 to $19, Valley furnace, and is very scarce. There is an active inquiry for Foundry Iron and Northern No. 2 for delivery this year has sold the past week at prices ranging from $20.25 to $20.75, Valley furnace. We can state that special grades of Northern No. 2 Foundry have sold for delivery in the first quarter, and in some cases through the second quarter, at $20.50 to $21, Valley furnace. There is not much inquiry for Forge Iron, but Northern makes are higher and we quote Northern Forge at $17.50 to $17.75, Valley furnace, or $18.35 to $18.60, Pittsburgh.

Steel.—The shortage in the supply of Steel is not being relieved as fast as expected, and Billets and Bars continue very scarce, the producers being still very much behind in deliveries. We quote Bessemer Billets at about $28, and Open Hearth $29 to $30, and note that two small lots of Open Hearth for prompt delivery are reported to have been sold at about $31, Pittsburgh. Sheet and Tin Bars are held at about $30, Pittsburgh, for prompt delivery to consumers that are not covered by contracts on which Steel is still due at a lower price. It is expected that all records for output of Steel will be broken during October, which has 27 working days, and this may relieve the shortage in Steel to some extent, commencing with next month.

(*By Mail.*)

It seems that the efforts of conservative interests to hold the Pig Iron market in check and keep prices on a reasonable basis will be without avail. Firm offers of $19 at Valley furnace for Bessemer Iron for any delivery this year or through the first half of next year have been turned down, and the market is practically bare of both Bessemer and Basic. Sales of Northern No. 2 Foundry Iron for delivery through the first quarter, and in some cases the first half, of next year have been made at prices ranging from $20 to $21 at furnace. It is a seller's market entirely, and almost any price for Pig Iron can be obtained that dealers care to ask. The shortage in Steel is not being relieved as fast as anticipated, due to the fact that all the Steel mills are running short of metal and are not able to get out their maximum tonnage in Billets and Bars. All the finishing mills have an enormous tonnage on their books, and all are more or less behind in deliveries. The advance of $1 a ton in Wire products has not as yet been followed by official advances on any other lines, but on Sheets, Tin Plate and Iron and Steel Bars premiums are asked and are being obtained by some of the mills for prompt deliveries. With the winter months coming on and a car shortage already here, indications do not point to the mills catching up on deliveries for some considerable time. Should there be plenty of snow and cold weather this winter shipments will be seriously retarded, and there will be a scarcity in the supply of some lines of finished products.

Ferromanganese.—A fair demand prevails, with prices ruling about as reported last week. We quote 80 per cent. Ferro for prompt delivery at $80 to $83, while $75 to $77 is quoted for forward shipment.

Wire Rods.—There is a continued scarcity in the supply of Wire Rods, and this, with the shortage in Steel, naturally makes the market very firm. We quote Bessemer Rods at $34 to $34.50, and Chain Rods from Bessemer stock at $33, Pittsburgh. Rods from Open Hearth stock are higher and can hardly be obtained at any price.

Muck Bar.—There is a fairly active demand and prices are higher. We quote best grades of Muck Bar, made from all Pig Iron, at $31 to $31.50, while Bar made from part Scrap is held at $28, Pittsburgh.

Skelp.—Prices on both Iron and Steel Skelp are very firm, and some sellers are asking higher figures. We quote: Grooved Steel Skelp, 1.57½c. to 1.60c.; Sheared Steel Skelp, 1.60c. to 1.65c.; Grooved Iron Skelp, 1.65c. to 1.70c.; Sheared Iron Skelp, 1.75c. to 1.80c., Pittsburgh, these prices being for ordinary widths and gauges.

Steel Rails.—The Carnegie Steel Company entered orders the past week for about 25,000 tons of Steel Rails for next year's delivery. The demand for Light Sections continues very strong, while prices are not only firm but may be advanced before long. We continue to quote 16 to 20 lb. Sections at $31, and 25 to 45 lb. Sections at $30 at mill. Standard Sections remain at $28 at mill.

Structural Material.—The tonnage entered by the American Bridge Company in September was again larger than the output in that month and amounted to a little over 60,000 tons. No large contracts have been placed in this district recently, but a great many small orders are being booked, ranging from 100 to 500 tons. Three or four of the leading Structural concerns report that they are practically filled up to April of next year or longer. Deliveries by the mills are fairly satisfactory, but on the medium sizes they are considerably behind. Prices are firm, and we quote: Beams and Channels, up to 15-in., 1.70c.; over 15-in., 1.80c.; Angles, 3 x 2 x ¼ in. thick up to 6 x 6 in., 1.70c.; 8 x 8 and 7 x 3½ in., 1.80c.; Zees, 3-in. and larger, 1.70c.; Tees, 3-in. and larger, 1.75c. Under the Steel Bar card Angles, Channels and Tees under 3-in. are 1.60c., base, for Bessemer and Open Hearth, subject to half extras on the Standard Steel Bar card.

Plates.—The order for 12,400 Steel cars placed recently by the Pennsylvania Railroad has been followed by one from the New York Central for 17,050 cars for 1907 delivery. This large order was distributed among the different Steel car concerns, the American Car & Foundry Company getting 7050 cars and the Standard Steel Car Company, Pittsburgh, 4350 cars. These orders insure a tremendous tonnage of Plates and small Shapes to the mills, amounting to 350,000 tons or more. No contracts for this tonnage have yet been placed with the Plate mills, but inquiries are expected in a short time. On Universal and Sheared Plates the mills cannot promise deliveries inside of six weeks to two months. Prices are firm and we quote: Tank Plates, ¼ in. thick, 6¼ in. up to 100 in. in width, 1.60c., base, at mills, Pittsburgh. Extras over this price are as follows:

	Extra per 100 lb.
Gauges lighter than ¼-in. to and including 3-16-in. Plates on thin edge	$0.10
Gauges Nos. 7 and 8	.15
Gauge No. 9	.25
Plates over 100 to 110 in.	.05
Plates over 110 to 115 in.	.10
Plates over 115 to 120 in.	.15
Plates over 120 to 125 in.	.25

Plates over 125 to 130 in	.50
Plates over 130 in	1.00
All sketches (excepting straight taper Plates varying not more than 4 in. in width at ends, narrowest end being not less than 30 in.)	.10
Complete Circles	.20
Boiler and Flange Steel Plates	.10
"A. B. M. A." and ordinary Firebox Steel Plates.	.20
Still Bottom Steel	.30
Marine Steel	.40

Shell Grade of Steel is abandoned.

TERMS.—Net cash 30 days. For anticipated payments a maximum discount may be allowed at the rate of 6 per cent. per annum and for a longer time than 30 days interest shall be charged at the same rate per annum. Invoices paid within 10 days from date thereof, discount of ½ of 1 per cent. is allowable. Pacific Coast base, 1.60c., f.o.b. Pittsburgh, with all rail tariff rate of freight to destination added, no reduction for rectangular shapes 14 in. wide down to 6 in. of Tank, Ship or Bridge quality.

Sheets.—Owing to the continued shortage in the supply of Sheet Bars and the large amount of new tonnage that is being placed, together with the liberal specifications that are being received on contracts, the Sheet mills find it impossible to catch up on deliveries. The American Sheet & Tin Plate Company and the leading independent Sheet mills are from 4 to 10 weeks behind in deliveries and have practically no stocks. There is already a shortage in cars, and with the winter months almost here it is pretty certain that it will be a considerable time before the Sheet mills are able to make better deliveries than they are doing at present. The tonnage placed in September was fully as large as in August, and there never has been a period in the history of the Sheet trade when the mills had as much work on their books as they have at present. Prices are very firm and we quote: Nos. 17 to 21, 2.25c.; Nos. 22 to 24, 2.30c.; Nos. 25 and 26, 2.35c.; No. 27, 2.40c.; No. 28, 2.50c.; No. 29, 2.65c., and No. 30, 2.75c. We quote Galvanized Sheets as follows: Nos. 10 and 11, 2.45c.; Nos. 12 and 14, 2.55c.; Nos. 15 and 16, 2.55c.; Nos. 17 to 21, 2.80c.; Nos. 22 and 24, 2.95c.; Nos. 25 and 26, 3.15c.; No. 27, 3.35c.; No. 28, 3.55c.; No. 29, 3.80c., and No. 30, 4.05c. We quote No. 28 Gauge Painted Roofing Sheets at $1.75 per square, and Galvanized Roofing Sheets, No. 28 gauge, $3.10 per square for 2-in. corrugations. These prices are for carload lots, jobbers charging the usual advances for small lots from store.

Iron and Steel Bars.—There is more probability at this time of an advance of about $2 a ton in the price of Steel Bars. The Carnegie Steel Company and Jones & Laughlin Steel Company are still quoting Steel Bars for indefinite delivery at 1.50c., Pittsburgh, but the other producers are asking 1.60c. and are getting orders at this price. New business in both Iron and Steel Bars continues heavy, and all the mills are from six weeks to three months behind in deliveries. We quote Steel Bars at 1.50c. to 1.60c., base, half extras, the higher price being for definite delivery. Iron Bars are held at 1.60c., Pittsburgh, and for prompt shipment as high as 1.70c. to 1.75c. is being paid.

Hoops and Bands.—New tonnage is light, but specifications on contracts continue to come forward very freely. The market is very firm, and we quote: Steel Hoops, 1.90c. and Bands for all purposes at 1.50c., base, half extras, as per Standard Steel card. These prices are for carload lots, f.o.b. Pittsburgh, plus full tariff rail rate to point of delivery, an advance of $2 a ton being charged for less than carloads.

Tin Plates.—The month of August was a record breaker in tonnage placed, but September business was fully as heavy, and one or two leading interests report that their September tonnage was a little larger than in August. All the Tin Plate mills are suffering for lack of Steel, and are not able to get out maximum tonnage. For this reason deliveries are very much behind, and it is understood that Tin Plates have been sold at a premium over the official price for reasonably prompt shipment. The high prices of Pig Tin, which reached 41⅝c. Monday, together with the scarcity and high prices of Tin Bars, would seem to fully warrant an advance of at least 15c. a base box, but as yet no official announcement of an advance has come from the leading interests. We believe, however, that Tin Plates for delivery in second quarter of next year have been sold at an advance of 15c. over the official price. It seems certain that the mills are practically assured of full work through the winter months. We quote $3.75 per base box, f.o.b. Pittsburgh, for 14 x 20 100-lb. Cokes, terms 30 days, less 2 per cent. off for cash in 10 days, on which price a rebate of 5c. a box is allowed for carload and larger lots.

Railroad Spikes.—The demand continues heavy. All the principal makers of Spikes are sold up for balance of this year and have a good deal of tonnage on their books for delivery in the first quarter of next year. We quote Railroad Spikes at $2.40 per 100 lb. for indefinite delivery and $2.50 to $2.60 for delivery this year.

Spelter.—Prices are slightly easier this week, the flurry having evidently subsided to some extent. We quote prime grades of Western at 6.12½c., St. Louis, equal to 6.25c., Pittsburgh.

Merchant Pipe.—Merchant sizes are in continued heavy demand, and the leading mills are practically filled for the rest of this year. In spite of the advances on other lines of product and the higher market and scarcity of Raw Materials, there are no signs of an advance in prices of Pipe. The mills that do not make their own Skelp are certainly having a hard row to hoe and cannot make money at the present prices of Pipe. The extreme discount on Merchant sizes of Steel Pipe remains at 81 and 5 per cent. off, to the large trade. Official discounts for carloads, which continue to be shaded one point or more, are as follows:

Merchant Pipe.

	Jobbers, carloads.			
	Steel.		Iron.	
	Black.	Galv.	Black.	Galv.
	%	%	%	%
⅛ and ¼ in	72	56	69	53
⅜ in	74	60	71	57
½ in	76	64	73	61
¾ to 6 in	80	70	77½	67½
7 to 12 in	75	60	72½	57
Extra strong, plain ends:				
⅛ to ⅜ in	65	53	62	50
½ to 4 in	72	60	69	57
4½ to 8 in	68	56	65	53
Double extra strong, plain ends:				
½ to 8 in	61	50	58	47

Boiler Tubes.—New tonnage being placed in Tubes is light, but buyers are specifying liberally on contracts placed earlier in the year. Prices are reported to be firmer, concessions having practically disappeared. Official discounts on carload lots, which are now generally being observed, are as follows:

Boiler Tubes.

	Iron.	Steel.
1 to 1½ in	45	50
1¾ to 2¼ in	45	62
2½ in	50	64
2¾ to 5 in	57	70
6 to 13 in	45	62

Iron and Steel Scrap.—The local Scrap trade is awaiting with interest the list of the Pennsylvania Lines West, which is to be given out this week, as the prices made will give a pretty good line on actual conditions as they exist in the local trade. The tonnage of sales is rather limited, buyers holding off in an endeavor to force the market down, while dealers are not anxious to sell their Scrap, believing the market will improve. Prices as quoted by dealers are about as follows, per gross ton, Pittsburgh: Heavy Steel Melting Scrap, $17.50; No. 1 Wrought Scrap, $19.50 to $20; Old Steel Rails, short pieces for Open Hearth use, $17.50; Old Steel Rails, Rerollers, $19 to $19.50; Bundled Sheet Scrap, $15.75 to $16; Cast Iron Borings, $10.50; Wrought Turnings, $13; Old Car Wheels, $20 to $20.50; Steel Axles, $23, and Iron Axles, $28 to $28.50.

Coke.—The Coke market continues quite active, but the demand is not as urgent as it was some time ago. As we get nearer the last of the year the question of Coke contracts for next year becomes more interesting, and we are advised of three or four contracts for Furnace Coke for next year that have been made on a conversion basis—that is, 7 tons of Coke for 1 ton of Bessemer Pig Iron, the latter f.o.b. at Valley furnace. We do not learn of any contracts for Furnace Coke for next year at a flat price having been made as yet, but Coke makers are asking from $2.85 to $3 a ton at oven, and it is not unlikely that some contracts will be made in the near future at about these prices. We quote strictly Connellsville Furnace Coke at $2.85 and 72-hour Foundry Coke at $3.25 up to $3.65 per ton at oven. These prices are for the best grades of Connellsville Coke, other Cokes made outside the Connellsville region selling at somewhat lower figures.

The offices of the Wilkoff Brothers Company, dealer in Iron and Steel Scrap, have been removed from room 1414 Park Building to rooms 804-805 Park Building, Pittsburgh.

Cincinnati.

FIFTH AND MAIN STS., Oct. 3, 1906.—(*By Telegraph.*)

Pig Iron.—The general situation is perhaps a little more strained than it was a week since, doubtless largely due to the fact that the available supply of spot Iron is rapidly decreasing. It would appear from the nature of the inquiries received that a large number of small buyers were not entirely covered for the remainder of the year, anticipating more favorable conditions as the season advanced. This, however, has not been the case, and in addition to being compelled to pay the high price for the year these buyers are also confronted by a shortage of Iron that makes it a very difficult proposition to provide for actual needs. Prices for Southern No. 2 Foundry for nearby delivery fluctuate more or less, and it is somewhat difficult to cover the range. It is safe to say, however, that the prevailing quotation ranges from $16.50 to $17, Birmingham, with $15.50 quotable for next year's delivery. Southern producers are complaining about the scarcity of cars, which condition is expected to grow more intense as the winter approaches. So far as Northern furnaces are concerned the situation is even more tense, all of them being practically sold up for this year with order books generously covered into next.

Reports indicate that several producers South as well as North have decided to withdraw from the market until labor conditions become more satisfactory and the supply of Coke more readily obtainable. The lower grades are more active, one sale of 3500 tons of Gray Forge at prevailing prices being reported. There are inquiries for about 1500 tons of Malleable from St. Louis territory, and 4000 tons from a consumer in southern Ohio, delivery covering the first six months. A Virginia melter asks for quotations of 3000 tons of Nos. 3 and 4 and Gray Forge, same delivery. Freight rates from Hanging Rock District to Cincinnati are $1.15, and from Birmingham $3. We quote, f.o.b. Cincinnati, as follows:

Southern Coke, No. 1	$20.00 to $20.50
Southern Coke, No. 2	19.50 to 20.00
Southern Coke, No. 3	19.00 to 19.50
Southern Coke, No. 4	18.00 to 18.25
Southern Coke, No. 1 Soft	20.00 to 20.50
Southern Coke, No. 2 Soft	19.50 to 20.00
Southern Coke, Gray Forge	17.25 to 17.50
Southern Coke, Mottled	16.50 to 16.75
Ohio Silvery, No. 1, 8 % Silicon	23.65
Lake Superior Coke, No. 1	20.65
Lake Superior Coke, No. 2	20.15
Lake Superior Coke, No. 3	19.65
Car Wheel Irons.	
Standard Southern Car Wheel	$25.50 to $26.00
Lake Superior Car Wheel	24.50 to 25.00

Coke.—The market is strong. Contracts running into next year are not being made to any great extent, as the operators are loth to anticipate so far ahead. We quote the best brands of Connellsville and Virginia Foundry from $3.50 to $3.85, f.o.b. ovens.

Finished Iron and Steel.—The situation is reported as very satisfactory, manufacturers all being busy and no stock being placed, but all forwarded on contracts. Rivets and spikes are active and the Structural trade is good. We quote, f.o.b. Cincinnati, as follows: Iron Bars, in carload lots, 1.73c., with half extras; the same, in smaller lots, 2c., with full extras; Steel Bars, in carload lots, 1.63c., with half extras; the same in smaller lots, 1.85c., with full extras; Base Angles, 1.83c., in carload lots; Beams and Channels, in carload lots, 1.83c.; Plates, ¼-in. and heavier, 1.73c., in carload lots; in smaller lots, 1.90c.; Sheets, 16 gauge, in carload lots, 2.15c.; in smaller lots, 2.70c.; 14 gauge, in carload lots, 2.05c.; in small lots, 2.60c.; Steel Tire, 1 x ¼ in. or heavier, 1.83c., in carload lots.

Old Material.—Considerable tonnage is moving. Prices fluctuate more or less, but general conditions are reported good. We quote dealers' prices, f.o.b. Cincinnati, about as follows: No. 1 Railroad Wrought, $17 to $18, net ton; Cast Borings, $8 to $9, net ton; Steel Turnings, $10 to $11, net ton; No. 1 Cast Scrap, $15 to $16, net ton; Iron Rails, $21 to $21.50, gross ton; Steel Rails, rolling mill lengths, $16 to $17, gross ton; Relaying Rails, $56-lb. and upward, $27 to $28, gross ton; Iron Axles, $25 to $26, net ton; Car Wheels, $17 to $18, gross ton; Low Phosphorus, $18 to $19, gross ton.

Metal Market.

NEW YORK, October 3, 1906.

Pig Tin.—The monthly statistics of Tin compiled by C. Mayer, secretary of the New York Metal Exchange, were favorable to holders of the metal and prices advanced. The total visible supply September 30 was 12,209 tons, compared with 12,840 tons August 31 and 14,508 tons a year ago. In the United States stocks also show a decrease, being 1340 tons at the end of September, against 1593 tons at the end of August. The total imports since January 1 aggregate 31,589 tons, against 30,489 tons during the corresponding period in 1905. Deliveries in the United States increased 1900 tons during the year, while London and Holland show a falling off of 1600 tons. The London market was very active, and on Monday and Tuesday prices advanced rapidly. On Thursday Tin sold in New York at 40.85c., advancing to 41.50c. on Friday. On Monday, following the sharp advance in London, the price rapidly went up to 42.50c.; Tuesday sales were made at 42.10c. to 42c. It is worthy of note that a large electrical manufacturing company which was in the market for over 100 tons Tuesday only took about 40 tons. To-day's London market closes at £194 5s. for spot and £193 10s. for futures, and the local market is also firmer at 42.45c. The statistical position is firm, and some are inclined to look for higher prices.

Copper.—Still higher prices have been reached this week, although business has not been of the same large volume that was recorded a week ago. There are several reasons for this, one being that consumers are now largely supplied with metal, and another is that there is little Copper available for this year's supply. Sales of Electrolytic were made on Tuesday on a basis of 21c., delivered, in Europe. January and February Copper has been sold in this country at 19.50c. to 19.75c. There is free buying of small lots at 20.50c., with very little metal for sale. One instance, which will serve to show the strength of the market, is that a large English consumer of Copper was in the market on Tuesday for 100 tons, and was compelled to buy on a basis of 21c. The demand from Europe continues, and it is becoming more and more apparent that American consumers will demand a larger share of American production, as exports during September fell off, amounting to but 13,519 tons. The total exports so far this wear aggregate 154,000 tons, compared with 190,000 tons in the corresponding period last year. Part of the European demand, particularly the German, is now being supplied by Japanese producers. It is becoming more and more difficult to quote exact prices, as there are so few lots offered, and consumers are so determined to secure the metal. We have it on good authority, however, that October Electrolytic has been sold at 21c., and those well informed in the Copper trade express the opinion that any Lake or Electrolytic for this year's delivery under 21c. is cheap. Further sales of Lake and Electrolytic in Europe are reported at close to 21c. for January and February delivery. The London market, which is higher than New York, closes to-day at £92 15s. for spot, £92 10s. for futures and £97 10s. for Best Selected.

Pig Lead.—A single car was sold Tuesday at 5.95c., but there is said to be no more Lead available under 6c. In St. Louis the market is quoted at 5.80c. to 5.85c. The American Smelting & Refining Company is reported to be shipping more promptly, although its price and terms are unchanged. Higher prices are not looked for, as the heavy consuming period will soon be at an end. The London market is firm at £18 15s.

Spelter.—Prices are lower than a week ago, 6.10c. to 6.15c. being quoted in New York, and, curious as it may seem, 6.15c. in St. Louis. In London £27 10s. is asked.

Antimony.—The market is stronger, particularly abroad. For Cookson's in New York 25c. to 25.25c. is quoted; Hallett's, 24.50c. to 24.75c., and other grades, 23.50c. to 24c.

Nickel.—Large lots can be had at 45c., smaller quantities at 55c. to 65c.

Aluminum.—The demand continues to increase, but the supply is limited. Prices are unchanged at 36c. for No. 1 Ingots and 34c. for No. 2 Ingots.

Ferroalloys.—There has been a good demand for Ferrosilicon, the price being slightly firmer at $95 to $98. For 75 per cent. Ferrosilicon the price continues unchanged at $150. In Ferrochrome there seem to be some low prices ruling for old contracts, but the general range for seaboard deliveries of carload lots would be $150 to $162 for 60 per cent. Chromium, with carbon contents varying from under 6 to 10 per cent. For 65 to 70 per cent. Chromium, with carbon contents, varying from under 6 to 10 per cent., the price would range from $175 to $187.50. For large lots of Ferromanganese the price is unchanged at $80 per ton.

Tin Plate.—Further import orders are pending for Plates, which clearly reflects the American manufacturers' inability to supply the demand notwithstanding the enlarged facilities. The market in Swansea to-day is quoted at 13s. 9d., an advance of 6d. from last week, although sales have been made there within a fortnight at 13s. In New York $3.94 is quoted for 100-lb. IC Coke Plates and $3.75, Pittsburgh, subject to the usual trade discounts.

New York.

NEW YORK, October 3, 1906.

Pig Iron.—Heavy sales of Basic Pig Iron are reported, chiefly for delivery in eastern Pennsylvania, in the first half of 1907. Spot sales have also been of good volume, and it is estimated that the total thus far taken for all deliveries will reach 60,000 tons, prices ranging from $18.85 to $19.25, delivered. Further business is under negotiation for deliveries next year, both in eastern Pennsylvania and New England. The Foundry Iron market shows an increasing disposition to cut loose, and the demand for early shipment Iron is unabated. Foreign shipments are being figured on in several directions, and prices at all tidewater points are now such as to make imports possible if prices abroad are not rushed up. In Forge Iron high prices have been paid for quick delivery—$19 at Virginia furnace and $20 at Eastern furnace. We quote for tidewater delivery as follows: Northern Foundry, No. 1, $22 to $23 for prompt and $21 to $21.50 for the first half of 1907; No. 2, $21.50 to $22.50 for prompt and $20.50 to $21 for the first half of next year. Southern Iron is sold at $20.50 to $21.50 for No. 1 and $19.50 to $20.50 for No. 2, the lower prices being for 1907 delivery and the higher for prompt delivery.

Steel Rails.—The principal order of the past week was about 25,000 tons additional for the Erie. Other business includes 3000 tons for the Central of Vermont, 3400 tons for the Interborough Rapid Transit, 6500 tons for the Las Vegas & Tonopah and 1600 tons for the Rapid Transit Construction Company. Among foreign inquiries is one for 20,000 tons for the Philippines.

Structural Material.—A good deal of important work that has been in sight for some time is still unplaced and new enterprises are coming forward from week to week.

However, the tonnage immediately going to the mills from building operations is not large. The American Bridge Company booked 62,000 tons of bridge and building orders in September. In the past week it has taken 1000 tons of bridge work for the Northern Pacific. Smaller tonnages were ordered by the Erie and the Pere Marquette. The supply of Structural work throughout the country keeps up well, particularly in the smaller buildings, such as schools, hotels and business blocks of moderate size. A further order for 400 tons has been received from San Francisco, being for a real estate association building. The new building which the Consolidated Stock and Petroleum Exchange of New York will erect at Broad and Beaver streets is expected to take about 10,000 tons of Structural Steel, and the contract is in the hands of the George A. Fuller Company. Eventually the Knickerbocker Trust Company will erect an office building on the site of the present exchange at Broadway and Exchange place. Deliveries from mills are improving, and as the close of the season approaches such work as can still be carried on will probably fare better as to Steel supply. The new Steel plant of Milliken Brothers on Staten Island will probably be turning out Billets this month, but the Structural mill is not expected to be active until later in the year. We quote as follows on mill shipments, tidewater delivery: Beams, Channels, Angles and Zees, 1.84½c.; Tees, 1.89½c.; Bulb Angles and Deck Beams, 1.99½c. On Beams 18 to 24 in. the extra is 0.10c., and on Angles over 6 in., 0.10c. Beams and Channels out of stock are sold at 2¼c. to 2½c.

Bars.—The pressure for Bar Iron has become so great that it is understood that an effort will be made in the very near future to start up some of the Eastern mills which have long been idle on account of the strike of their men. The manufacturers are apparently determined not to make the concessions demanded, and efforts are to be made to resume operations on the old basis of wages. The market is very strong, and the minimum price prevailing is 1.60c., Pittsburgh, or 1.74½c., tidewater. Steel Bars continue to be quoted at a minimum of 1.64½c., tidewater, but this is on contracts for distant delivery, premiums being asked on orders placed for reasonably early shipment.

Plates.—Business in this vicinity has shown decided improvement, several good sized transactions having recently occurred. Among these is the purchase of about 4000 tons by the United States Government for the Brooklyn Navy Yard, an eastern Pennsylvania company being the successful bidder. Other lots taken range from carloads to 2000 tons. A more favorable disposition is shown toward making contracts, although buyers generally consider it unnecessary to protect themselves, as they believe that prices are not likely to be advanced in the near future. Quotations are as follows at tidewater on carload shipments: Sheared Tank Plates, 1.74½c. to 1.84½c.; Flange Plates, 1.84½c. to 1.94½c.; Marine Plates, 2.14½c. to 2.24½c.; Firebox Plates, 2.24½c. to 2.60c., according to specifications.

Pipe.—While no large lettings are at present in sight in this vicinity the foundries are steadily booking good orders, which in many cases are for delivery next spring. These orders are coming from both water and gas companies. Conspicuous among the buyers are some who have shown themselves shrewd and sharply discriminating in the past. They are evidently convinced that the pressure for Pipe will run under full headway far into the coming year. Carload lots of 6-in. are quoted at a minimum of $32 per net ton at tidewater, with February named as the earliest date for delivery.

Old Material.—Prices on everything are very firm. The Steel market is exceptionally strong. This appears to be due to an interesting occurrence. It is stated that a number of the leading steel mills in eastern Pennsylvania have for some time by agreement fixed a maximum price at which they would purchase Heavy Melting Steel Scrap. This maximum has latterly been so low that dealers and independent Steel companies have been taking up all the available supply of such material, and recently some of the mills understood to be in the combination have been obliged to pay more than the so-called official quotation. With the increased number of Steel plants in this vicinity it is regarded as unlikely that any further considerable quantities of Steel Scrap will be shipped from this district to Pennsylvania. The Milliken Brothers Steel plant, soon to be started on Staten Island, will itself have a sufficient capacity to take all the Heavy Melting Steel Scrap and Scrap Steel Rails within a good radius from New York City. Some of the Eastern Bar Iron mills which have long been idle on account of the strike of their workmen are expected to make an effort to start soon, while others which have been running on single turn are now endeavoring to get a sufficient force of workmen together to run double turn. This will mean an increased demand for rolling mill stock. Cast Iron Scrap is if possible stronger than it has been, on account of the scarcity of Pig Iron for prompt shipment. Stove Plate is particularly scarce. It is reported that a considerable quantity of No. 1 Railroad Wrought Scrap has been sold at $23, delivered in eastern Pennsylvania. Cast Borings and Turnings are in much heavier demand than for months. No. 1 City Wrought Scrap is in improved demand, and several small lots have been sold at our outside figures. Quotations for New York and vicinity are approximately as follows per gross ton:

Old Iron Rails	$23.50 to $24.00
Relaying Rails	27.00 to 28.00
Old Steel Rails, rerolling lengths	18.00 to 18.50
Old Steel Rails, short pieces	16.25 to 16.75
Heavy Melting Steel Scrap	16.25 to 16.75
Standard Hammered Iron Car Axles	29.00 to 30.00
Old Steel Car Axles	21.00 to 22.00
No. 1 Railroad Wrought	20.00 to 21.00
Iron Track Scrap	17.50 to 18.00
No. 1 Yard Wrought, long	18.00 to 18.50
No. 1 Yard Wrought, short	17.50 to 18.00
Wrought Pipe	14.00 to 15.00
Light Iron	10.00 to 11.00
Cast Borings	10.00 to 11.00
Wrought Turnings	13.00 to 14.00
Old Car Wheels	18.50 to 19.00
No. 1 Machinery Cast	16.50 to 17.00
Stove Plate	13.00 to 14.00
Grate Bars	12.00 to 13.00
Malleable Cast	17.00 to 18.00

The Coal Trade.

BY FREDERICK E. SAWARD.

Indications point to scarcity of cars again this fall and winter. That means a less easy moving of coal, which in turn probably means an increase in values. Some shippers are already talking of a movement in prices of soft coal east of the Alleghenies from the low level at which they have been ranging. It is surprising to find how low some of the central Pennsylvania operators sold their coal during the summer. It usually happens that a dull summer is succeeded by an active fall and winter.

This is a large and steadily growing country, and there is a growth in every line of product as the population increases. Despite the ebbs in the tide of business that occur at certain times there is always the gaining of a higher level with the coming of the flood tide; it is well to remember this. The periods of depression are shorter and much less pronounced each time that they occur, showing most conclusively that there is progress in all industrial pursuits and in the commercial organism of the country. None of the great industries can be independent of a coal supply. Even coal for threshing is a large item. And see where an increase of 10 per cent. per annum in the coal movement leads. It means no less than 100,000 tons per day. The output of coal in this country last year was 392,000,000 tons, and 10 per cent increase on that is certainly a tonnage worth speaking of.

The Bituminous Situation

has shown considerable improvement as to the cheaper grades. Where a few odd lots sold in August and the early part of September as low as $2 f.o.b., there is nothing offering in the market at the present time at less than $2.25 per gross ton at the loading ports on the Atlantic coast. There seems to be a demand for all high grades of coal available at full prices. On unknown coals and the cheaper grades the demand is less. Baltimore & Ohio shippers seem to be doing a good business at figures fully equal to those prevailing for Pennsylvania grades, as against the usual differential of 15 to 20 cents. The nonrelief in the car shortage situation, with the increasing demand all along the line, is having the effect of stiffening the market for West Virginia coal. Fuels that have been dangling around $1.20 at the mines are reported as doing from 10 to 15 cents better now. Individual sales of high grade fuels, such as Georges Creek, which had not gone above $1.50 during the summer months, are reported, coincident with the first fall days, at 10 cents higher. It is evident that "soft coal is worth more money."

With all the gossip as to trade movements none is so interesting as that reflex of tonnage shown by the reports of the carriers. Thus the Pennsylvania Railroad is nearly 3,000,000 tons ahead of last year on a total of 34,000,000 tons; the Baltimore & Ohio is over 2,500,000 tons ahead on a total of 18,000,000 tons; the Norfolk & Western is 800,000 tons ahead on a total of 8,000,000 tons, and thus it goes all along the list of carrying companies in the soft coal trade.

The Anthracite Tonnage

is less than last year, by reason of the April-May idleness, and a peculiar result thereof is a shortage of the smaller sizes. There is nothing like as much of it to be had this fall as a year ago. This is taken as an indication of greater activity at many industrial establishments, and particularly the use in many cities of these small sizes in combination with soft coal in order to avoid the smoke nuisance.

There is no longer any trouble in regard to strikes; such idleness as may prevail is due only to scattered instances of dissatisfaction, from which so great and diversified an industry as the coal trade can never expect to be free. But in general it can be said that all coal mining districts are fully employed and turning out record tonnages. Labor is well employed, and at the same time the supply of miners and

mine laborers in most districts is below requirements, notwithstanding the high rate of wages paid. Not only in the union districts are wages on a high basis, but in the non-union districts also there is a certain forced equality or comparative basis of wages, which makes the return to those engaged in this form of work fully as satisfactory as at any other time in recent years. It can be said, too, that the rate of wages is a factor in limiting production, for when the former or customary weekly income can be made in three, four or five days experience shows that it is not easy to secure a full force of men to work the six business days of the week.

The following table, showing the production in tons of anthracite and bituminous coal in Pennsylvania, with the percentage increase of each of the years named over the previous years, is startling:

	Production of anthracite.	Per cent. increase.	Production of bituminous.	Per cent. increase.
1865	10,617,000	...	5,669,000	...
1875	20,076,000	88.9	10,500,000	85.2
1885	34,228,000	70.4	23,214,000	121.0
1895	51,785,000	51.3	44,836,000	93.1
1905	69,339,000	33.9	106,831,000	138.2

Legislation on railroad rates is not likely to redound to the advantage of the public in whose interest such legislation was supposed to be. There is great confusion as to the meaning of sections of the Hepburn bill. Already one may hear of cars being held at junction points because of the non-acceptance of the proportionate through rate by the connecting line, and there are other features which it would seem will have the effect of increasing cost to consumers. It is also said that private cars are to be dispensed with in the near future, as a result of this act. It would seem as though this would result in reduced facilities of transportation, for this element has always acted as a very mobile addition to the regular equipment.

Iron and Industrial Stocks.

NEW YORK, October 2, 1906.

The stock market, which was depressed on Thursday and immediately succeeding days by tightness in money, improved quite sharply on Monday and Tuesday as a result of measures taken by the Secretary of the Treasury, and the prospect of further gold importations. It is now expected that importations of gold on this movement may exceed $50,000,000. Other developments took place of a favorable nature for stock operations, among them being semi-official declarations that the long pending iron ore deal between the United States Steel Corporation and the Great Northern Railroad Company would be closed very shortly, possibly this week. The United States Steel stocks were particularly affected by the latter news, and the common stock rose to 47⅝ on Tuesday, as against its low point of 43⅜ on Friday, while the preferred reached 107½, as against 105. The range of other active stocks during the week ending Tuesday was as follows: Car & Foundry common 43⅛ to 46⅜; Locomotive common 72⅜ to 75; Steel Foundries preferred 43½ to 44; Colorado Fuel 52 to 55½; Pressed Steel common 53¾ to 55⅝; Railway Steel Spring common 54¾ to 56; Republic common 36 to 38⅞, prefered 97 to 99; Sloss-Sheffield common 73½ to 75; Cast Iron Pipe common 46¾ to 50¼. Last transactions up to 1.30 p.m. to-day are reported at the following prices: Car & Foundry common 45⅛, preferred 101; Locomotive common 74, preferred 112¼; Steel Foundries common 10¾, preferred 44½; Colorado Fuel 56⅝; Pressed Steel common 54⅜, preferred 97¾; Railway Spring common 55½; Republic common 38⅛, preferred 98½; Sloss-Sheffield common 74¾; Tennessee Coal 159; United States Cast Iron Pipe common 50, preferred 92½; United States Steel common 47⅜, preferred 107; Can common 6¾, preferred 56½.

Bethlehem Steel Corporation stocks have shown sharp fluctuations of late. The preferred stock, which touched its highest point, 88½, June 28, sold down to 65 the past week, recovering to 74⅞ on Monday, and receding to 70 on Tuesday. The common stock reached its high point, 26½, August 23, and sold down to 20 during the past week, at which the last reported sale was made.

The American Car & Foundry Company has issued its report for the quarter ended July 31, which compares as follows:

	1906.	1905.
Net earnings	$1,657,053	$625,312
Preferred dividends	525,000	525,000
Surplus	$1,132,053	$100,312
Previous surplus	14,113,094	12,407,434
Total surplus, July 31	$15,245,147	$12,505,746

Dividends.—The Nova Scotia Steel & Coal Company has declared a dividend of 2 per cent. on the preferred stock, payable October 15.

The National Fire Proofing Company has resumed dividends on the preferred stock by ordering a disbursement of 1 per cent., which is assumed to be a quarterly dividend.

The Westinghouse Machine Company, East Pittsburgh, Pa., has declared a quarterly dividend of 2½ per cent., payable October 10.

More New Steel Corporation Capacity.

A decision has just been reached by the United States Steel Corporation to build three or four new blast furnaces in the Pittsburgh District. The additions will be chiefly at the Duquesne plant, though it is probable that one furnace will be built at Donora. The open hearth steel capacity of the corporation will be increased at the same time by the building of 30 50-ton furnaces. These latter additions will be made chiefly at Pittsburgh District plants, but it is probable that some of the new open hearth capacity will be erected in the Cleveland District at the works of the American Steel & Wire Company. Definite decision on these points will be made in the coming week and construction work will begin at an early date.

The American Sheet & Tin Plate Company, Pittsburgh, Pa., has bought the plant and business of the Canton Roll & Machine Company, Canton, Ohio, has assumed all outstanding contracts, will pay all obligations and will collect all outstanding accounts. The American Sheet & Tin Plate Company requests that all correspondence relating to accounts be sent to the Frick Building, Pittsburgh, and that all other correspondence be addressed to the American Sheet & Tin Plate Company, Roll & Machine Works, Canton, Ohio. It is understood the new owner will operate this plant in the manufacture of rolls for its sheet and tin mills.

The Canadian Niagara Power Company's new transmission line along the Canadian shore of Niagara River to Buffalo is nearly finished, and the aluminum cables which will carry the power across Niagara River from a point in Fort Erie, opposite Buffalo, on steel towers have been placed in position, connecting with the new terminal house on the bank of the Niagara River in Buffalo. This new terminal station has a nominal capacity of 25,000 hp., and in connection with the present terminal house, which has a capacity of 30,000 hp., will give Buffalo a total of 55,000 hp. of Niagara Falls electrical energy available after October 4.

The universal plate mill designed by K. C. Gardner, contracting engineer of the United Engineering & Foundry Company, Pittsburgh, and built by that company for the Illinois Steel Company, will be driven by electric motors of 12,000 hp. each. These are said to be the largest electric motors ever built, and are now under construction at the East Pittsburgh shops of the Westinghouse Electric & Mfg. Company.

The Crucible Steel Company of America's branch at Chattanooga, Tenn., which is under the management of Thomas E. Parnell, has just moved into a new building on Newby street. The company's steel business in Mexico will be handled from the Chattanooga branch, and Mr. Parnell expects to go to Mexico within the next few weeks. The steel trade in Tennessee for the current year has been much greater than ever before.

The Ontario Power Company has commenced the installation of three additional generators and turbines in its power plant on the Canadian side at Niagara Falls. These generators have a capacity of 12,000 hp. each, and when they are in position and connected the company will have in use 66,000 hp. of its proposed development of 200,000 hp. Three generators of 10,000 hp. each have been in operation for some time.

The Bucyrus Company, South Milwaukee, Wis., manufacturer of steam shovels, &c., has bought the plant of the Manville Covering Company in South Milwaukee adjoining its own works. The Manville plant, comprising a four-story brick building, has been idle for some time. It stands on a plot about 100 x 150 ft., and will be connected to the main Bucyrus plant by an overhead bridge spanning a railroad track.

New Publications.

The Commerce of Rotterdam in 1905. By Gust. H. Muller, Consul-General of Roumania at Rotterdam.

Mr. Muller, who is closely connected with the iron ore shipping trade of Europe, has just issued in very handsome form his third report as Consul-General of Roumania at Rotterdam. It is really a splendidly equipped and elaborate monograph, not alone on the commerce of that great port, but really a review, international in its breadth and scope, of a number of great articles of commerce like iron ore, pig iron, iron pyrites, phosphates, basic slag, nitrates, copper, lead, spelter, tin, coal and coke, petroleum, coffee, tobacco, sugar, grain and others. There are reviews also of the industries, the agriculture and the fisheries of the Netherlands. In the extent and variety of the information gathered the report stands unique among the consular documents of any country.

Smoley's Tables. Parallel Tables of Logarithms and Squares, Angles and Logarithmic Functions, Corresponding to Given Bevels, and other tables. For Engineers, Architects, &c. By Constantine Smoley, C.E. Third Edition. Size, 5 x 7 in.; pages, 331. Leather. Price, $3. Publisher, The Engineering News Publishing Company, New York.

The first edition of this work was brought out in 1901, and contained logarithms and squares of feet, inches and fractions of inches, expressed in decimals of a foot, and varying by $^1/_{32}$ in. from zero to 50 ft. In the present edition this table has been extended to 100 ft., the new part being tabulated by increments of $^1/_{16}$ in. instead of $^1/_{32}$ in., it being considered that for lengths over 50 ft. the smaller steps are not of so much value. In the tables of the angles and logarithmic functions, the values for zero to 12 in. are given, varying by steps of $^1/_{32}$ in., and corresponding to bevels or slopes referred to a base of 12 in. In other words, it covers a range from zero to 45 degrees. The remainder of the book contains a table of the logarithms of numbers from zero to 1000; decimal equivalents of a foot for inches and their fractions, increasing by thirty-seconds; constants frequently used in computations, and explanations and examples of the use of the tables.

In the tables of logarithms and squares the parallel system of tabulation has been followed, i.e., the squares and logarithms of the same numbers are placed opposite each other, for the reasons that both quantities for the same number are often wanted at the same time, and that in many calculations one is wanted with reference to the other when the number itself is unimportant. In the author's opinion the parallel combination of the tables finds its principal usefulness in the solution of triangles when figuring data for structural details, but in many problems, and particularly those relating to mensuration, the arrangement is especially advantageous. For all ordinary work of the structural draftsman the parallel tables of logarithms and squares eliminates the need of trigonometric tables, except in rare cases when angles, expressed in degrees, minutes and seconds, are involved, and then the use of the table of angles and logarithmic functions will usually fulfill the requirements.

The work in its previous editions has already earned the endorsement of the engineering profession and needs no special words of commendation at this time.

The Design and Construction of Cams.—By Charles F. Smith, Frederick A. Halsey and others. Reprinted from the *American Machinist*. Publisher, Hill Publishing Company, New York. Cloth, 9 x 12 in. Pages, 70. Price, $3.

The contents of this book are arranged in fifteen chapters, which take up consecutively, and with numerous illustrations, the classification of cams and order of work, the machine from which the illustrations are drawn, the operation of the chain-making machine, charting movements, laying out an actual face cam and making the former and milling the cam, laying out and making periphery cams, raised pathway, yoke and conical cams, cams for prescribed movements, repeated and return movement cams, charts with a separate base line for each cam, abbreviated charts, extreme angles, locating key ways, double cam system of the monotype, cam movements obtained from base curves other than a circle, the location of lever fulcrums for face cams, minute adjustment of cam lever movements and grinding cams. It will be seen that the subject is exhaustively covered.

Notes on Metallurgical Mill Construction. Edited by W. R. Ingalls. Publisher, the *Engineering and Mining Journal*, 505 Pearl street, New York. Octavo, cloth. Pages, 256. Price, $2.

The greater part of this book consists of articles which have appeared at various times in the columns of the *Engineering and Mining Journal*. Quite a number of them are abstracts of papers originally presented before engineering societies and subsequently published in that periodical. The selection of the articles has been made with the view of covering every detail involved in the construction of metallurgical works other than iron and steel, such as concentrating mills, cyanide plants and smelting works. Not only is the machinery covered, but attention is also paid to materials for construction, such as brickwork and concrete, including the means for securing durability of exposed parts. Many of the subjects considered have not been treated with any fullness in technical literature, except in periodicals and in the transactions of engineering societies, wherein they escape general availability. The publication of these articles in this form will doubtless prove of practical value to mill men and smelters.

General Specifications for Railroad Bridges and Structures. Prepared under the direction of Virgil G. Bogue, C. E., by Albert W. Buel, associate on bridges. Pages 61, with 17 pages of tables and diagrams appended; paper cover. Price, 50 cents. Published by the Engineering News Publishing Company, New York.

These specifications have been rewritten and revised after three years' use, and it is stated conform to the most recent practice, innovations being avoided that have not been fully demonstrated to be improvements on older forms. A section is added making the specifications applicable to highway bridges and buildings. The author makes no claim of originality, observing that the time has long since passed when it was possible to introduce much originality in new specifications for structural steel without greatly sacrificing their value.

General Specifications for Steel Railroad Bridges and Viaducts. By Theodore Cooper. Pages, 36; paper cover. Price, 50 cents. Published by the Engineering News Publishing Company, New York.

This is the seventh edition of the author's bridge specifications, the first publication having been made more than 25 years ago. The specifications are more particularly intended to cover ordinary railroad bridges or those resting on vertical supports only. Referring to the fact that railroads are demanding bridges capable of carrying the greatest possible train loadings safely and rigidly, the author says that hereafter there will be no increasing train loads to excuse faults of design, details of construction or inferior material. A feature of the tables contained in the appendix is one giving weights and other data concerning recent heavy passenger and freight engines on leading railroads.

Rolling Mill Machinery, Electrically Driven (Fluettenwerks-Maschinerien, mit elektrischem Antrieb). By A. Schwarze. Section I, Hot Saws. Published by Fr. Wilh. Ruhfus, Dortmund. Price, 5 marks.

In what is apparently to be the first of a series of monographs on rolling mill machinery A. Schwarze describes a series of designs of hot saws made by him. There is a brief summary of general considerations and then there are presented descriptions of different saws, all electrically driven, for billets, rails, rounds, beams, &c., many of them moved forward by hand, hydraulically and electrically. The engravings are drawn to scale and are neat and clear. The text furnishes weights of materials for each part in detail.

The Machinery Trade.

NEW YORK, October 3, 1906.

Considerable complaint is head in the trade, especially among machinery dealers, concerning deliveries, which are apparently getting further in the future. This condition is interfering with business to a great extent, as intending buyers are not inclined to purchase tools which cannot be delivered for six months, and as a consequence merchants are compelled to refuse orders in which they could make a good profit could they get the machines. There are plenty of inquiries in the trade but purchases are not so numerous. In view of the extended deliveries those desirous of making purchases are not sending out lists of their needs, but are taking a machine here and there wherever they can get one. Machinery houses in this city are receiving inquiries from all sections of the country, including the Western coast, asking if they can furnish this or that machine within a few weeks. This certainly reflects the great prosperity of the trade all over the country.

The experience of a man particularly interested in county fairs in trying to get machinery exhibits for such meetings in this section of the country this fall will interest machinery men as an indication of the prosperous conditions in the trade. It is customary at such fairs to show, in addition to farming equipment, any other class of machinery that exhibitors might wish to send, and usually there are displayed at the fairs a general assortment of machinery and machine tools sent by manufacturers in the hope of attracting the attention of some proportion of the attendants. This year there was a comparatively small proportion of farming machinery shown at the average county fair, simply because most farming machinery men were either rushed with work or unable to secure needed equipment to turn out their products, and in some cases those in charge of the county fairs turned their hopes toward the general machinery trade, expecting to bolster up their machinery exhibits by importuning the trade to send samples of their equipment for show. Those efforts, however, resulted in nothing, as the manufacturers, generally speaking, were unable to help them, and consequently the machinery exhibits at the average fairs held in this vicinity fell off to a great extent. A man who is attached to a board of trade in a large city adjacent to New York is authority for the statement that the body he represents was in receipt of an unusual number of urgent requests from State and county fair managers for information as to whether any machinery manufacturers in the city might be able to send exhibits. The authors of these frantic appeals explained that most of their usual exhibitors were too busy to make machines for show, and they were in a quandary as to where to look for the machinery exhibits they had already advertised.

Foreign trade is on the increase, especially that with England, from which country numerous inquiries and orders were received the past week. It is stated that American machines are so well liked that merchants are willing to wait several months for delivery. Some orders were also received from Spain for machine tools. That country has been practically dead for a long time so far as the machinery trade is concerned, but it is said that an impetus has been given manufacturing industries that augurs well for machinery manufacturers in this country.

The present unrest in Cuba has had some effect on the machinery trade, especially along the lines of equipment used on sugar plantations and in sugar mills. While no orders placed with the trade have been canceled as far as can be learned, word has come from the island that there is no special hurry for some lines of equipment which have been ordered, and it is known that some large deals which were under way have been held up temporarily. This does not indicate, machinery men say, that there will be any cancellations, nor do they feel that there will be any particular slump in the trade. Early in the year, as was stated in these columns, business promised to be especially good with all lines of machinery. The hold-up has been welcomed in a way by some dealers who have been hard put to fill orders which were urgent, and they declared that it was possible that later on they will be able to get better terms regarding deliveries than they can now. Those who are close to business conditions in the island say that the rebellion has not frightened people who have been making large investments in Cuba to any extent, but it has prompted purchasers on the island to move somewhat cautiously, and consequently they have informed those with whom they had inquiries out that they will not be ready to give out orders as soon as they had expected. This condition does not apply in every case, however, as some of those who have projects under way have gone right ahead with them and a number of cases have been heard of in the trade where people on the island who have been queried as to whether they want their orders filled have sent word that they want shipments made as arranged, without regard to the political and military strife now going on in the new republic.

It is expected that the convention of the National Supply and Machinery Dealers' Association at Detroit last week will have a far reaching effect on the machinery trade, as much was accomplished that will be of material benefit to machinery and supply dealers throughout the country. The proceedings of the meetings are given in detail on page 872.

Manufacturers of steam specialties, such as valves, &c., have increased prices about 5 per cent. The increase is made principally on brass goods, and is the result of the rise in copper.

Tennessee Coal, Iron & Railroad Company Buying.

Large orders have been placed during the last two weeks by the Tennessee Coal, Iron & Railroad Company for improvements which were projected several months ago. The buying of this company has been one of the features of the week in the trade, and most of the orders were placed by F. H. Crockard, vice-president of the company, who has been on here from Birmingham, Ala., to interview machinery men. It is understood that the orders placed by Mr. Crockard will aggregate a very large sum, but he has by no means bought for all of the contemplated improvements to be made to the company's plant. Some time ago it was pointed out in these columns that the company would spend $2,500,000 for improvements, and some of the work is well under way. Among other things the company has yet to double the open hearth plant at Ensley, in order to carry out the plans of improvements made in the spring. The duplex system which has been in use at this plant is to be extended, and the present Bessemer converter will be reconstructed. Other comtemplated improvements are the installation of a new converter, new open hearth furnaces, new boilers and additional gas producers. The company is also preparing to make alterations in the rail mill equipment, and the rail mill steam plant will be equipped with automatic stokers, additional cranes, &c. Plans made in the spring also provide for a central electric power station at Ensley, and storage bins are to be remodeled and new conveying machinery is to be added. The company's announcement to the effect that all of the money appropriated in the spring is to be spent during the year gives indication that the buying will be continued for some time, as it is said in the trade that there are still some large inquiries out. The fact that Mr. Crockard came North to interview machinery men gives assurance that most of the deals will be closed in New York, as it is understood that he talked over some requirements with people in the trade here with a view to deciding later on what will be needed for other improvements.

The Bethlehem Steel Company has been making some purchases of late for its Bethlehem plant, especially along the lines of blacksmith equipment. The company has made provision for enlarging its department for turning out drill rods, and a fair sized number of inquiries are in the market for machinery for early delivery.

It is expected that before long the New York, Ontario & Western Railroad will send out a small list of equipment for several improvements along its line. The company has added some buildings to its Middletown shops, which have not been equipped with machinery as yet, and there is talk in the trade to the effect that the Oneonta shops are to be enlarged. The ultimate plans of the company provide for the establishment of central shops at that point, it is said, but at present it is known that the company intends to make some temporary additions, and from what machinery men are told about the needs along the line it will not be long before the company will request bids.

The Delaware, Lackawanna & Western Railroad is asking for prices on some equipment, which, it is thought, is for its shops at Kingsland. The company has not yet, it is understood, filled its needs for those shops, although they were erected some time ago.

Contract has been let for the construction of the new shops of the Cleveland, Cincinnati, Chicago & St. Louis Railroad at Indianapolis, Ind., the main building of which is to be 214 x 572 feet. There are to be 20 buildings in all. Now that the contracts have been let for the buildings it is expected that the company will shortly send out specifications for the machinery which will be required to equip these extensive shops.

The engineering firm of Dodge & Day, Philadelphia, Pa., which has in charge the construction of the new plant of the Arthur Koppel Company at Homewood, near Pittsburgh, Pa., has sent out specifications for five traveling cranes and for the heating equipment. The plant is being constructed as rapidly as possible, and orders have been placed for some of the machinery, but as the plant is to be an extensive one, there is to be considerable new machinery purchased, specifications for which will be sent out by Dodge & Day as soon as they have decided upon the machines to be installed. Orders thus far have been placed for the boilers, engines, generators and power plant equipment, 8-ft. plate bending rolls, 8-ft. straightening roll, rotary splitting shear, guillo-

tine splitting shear, pneumatic punch, presses, a 7 and 4 ft. radial drill, planers, hydraulic wheel press, drill presses, &c.

The new plant which the Ramapo Iron Works, Niagara Falls, N. Y., is to build at Stamford, Ont., will be equipped with motors approximating 125 hp. capacity, the transformer plant to be of 300-kw. capacity, in order to allow for expansion. The company has on hand at its two American plants quite a quantity of machinery which it expects to use at the Canadian Ramapo Iron Works, and consequently will purchase but little new. The machinery to be installed is of the kind generally used in the construction of frogs, switches and switch stand work, and comprises a general line of planers, drills, benders, heavy punches, shears and presses suitable for die forging, together with a general blacksmith's outfit, also machine shop equipment suitable for taking care of repairs and the making of switch stands.

Power Requirements.

The trade will very probably soon hear of requirements for a power house to be erected by the New Jersey Short Line Railroad Company, which proposes to build an electric road from Milltown to Elizabeth, N. J. No decision has been reached as to where the proposed power house is to be located nor have the engineers in charge decided upon its size. Stern & Silverman, who have offices in the Land Title Building, Philadelphia, are the engineers in charge, and they will later on send out specifications for the machinery requirements.

Inquiries are being made in the trade by Walter Kidde, consulting engineer of 85 Liberty street, New York, for 250 hp. of watertube boilers and a 250-hp. engine, together with feed water heaters and other appurtenances to make up an auxiliary steam power plant for the Ibenville Lumber Company, Moncton, Canada.

The Common Council of the city of Orange, N. J., will receive bids on October 29 on machinery requirements for a power house and other equipment for a municipal lighting plant. The specifications for the plant are being prepared by James M. Seymour, Jr., 47 Lawrence street, Newark, N. J., and they will be advertised shortly. According to a decision made by the Council on Monday night each bidder must deposit a check for 5 per cent. of his bid, and the successful bidder must give a bond on a surety company on 50 per cent. of the amount of the contract. The plant is to be of three units, and bidders on steam engines will give prices on three engines capable of producing 225 hp. The engines are to be direct connected. The specifications also provide for dynamos, switchboards, transformers and all the accessories of a complete lighting plant.

The New Jersey Zinc Company closed an order within the week with a large engineering concern for a blowing engine to be added to the Palmerton, Pa., works.

The Hudson Companies, which is constructing the twin tunnels under the North River connecting Jersey City and New York, has awarded the contract for the electrical equipment to the General Electric Company for about $3,000,000. The initial equipment will be capable of developing 25,000 hp., which will be developed by steam turbines.

Many New York machinery men who have had dealings with A. W. K. Billings, and who will remember him personally as chief engineer of the Havana Central Railroad Company, which bought a large list of equipment during the winter for an electric railroad in Havana, will be pleased to learn that Mr. Billings has gone into business for himself as a general consulting engineer, with offices in Havana.

The Vandyck, Churchill Company, 8 Dey street, New York, now has the exclusive agency in New York, Philadelphia, and Pittsburgh of the New Doty presses, punches and shears. The company has on exhibit a large variety of sizes of these machines at its New York office.

Catalogues Wanted.—Catalogues of foundry and pattern shop equipment and plumbing and heating goods are desired by the Rainier Iron Works, Rainier, Ore., which operates a machine shop, to which it will shortly add a foundry. A general plumbing and steam fitting business will also be carried on. C. A. Cheshire, C. S. Prescott and F. B. Prescott are the proprietors.

Chicago Machinery Market.

CHICAGO, ILL., October 2, 1906.

Further heavy purchases of machinery for additions to the iron and steel producing capacity of this district are under negotiation, and large contracts will shortly be awarded for blowing engines, boilers and ore handling equipment by the Inland Steel Company, First National Bank Building, Chicago. This company will build two blast furnaces at Indiana Harbor, Ind., where it already operates a large steel plant and rolling mills, and the finishing capacity will also be materially increased. Proposals are also being received for pumping engines for the municipal water plant at Gary, Ind., and a lighting plant will also be built. The purchases of rolling mill machinery and blast furnace equipment, owing to the new operations at Gary, have been heavier this year in this section than at any time in the history of the steel trade, and several of the Eastern builders have sufficient contracts booked from this source alone to carry them well through next year. In the machine tool trade the lists of the Chicago, Milwaukee & St. Paul and the Kansas City Southern are engaging the attention of dealers and manufacturers. The question of delivery rather than price will largely govern the awards, as much of the equipment is required for early installation.

The Indiana Steel Company, Chicago, one of the subsidiaries of the United States Steel Corporation, has awarded the contract to the General Electric Company, Schenectady, N. Y., for the motors, six in number, to drive the new rail mill at Gary, Ind. The order involves an aggregate of 24,000 hp., consisting of three units of 2000 hp. each and three units of 6000 hp. each. Two of the 2000-hp. motors will drive the four stands of continuous blooming rolls, and the other will drive the stand of rolls in which the finishing pass is given. One 6000-hp. motor will drive the three-high finishing mill, second edger and leader passes, another will drive the three-high blooming mill, and the third unit of this horsepower will drive the dummy and first edger. Contract for the boilers for the Gary plant has been let to the Rust Boiler Company, Pittsburgh, Pa. The order includes 16 400-hp. Rust watertube boilers.

At the annual meeting of the stockholders of the Independent Pneumatic Tool Company, Chicago, the following officers and directors were elected for the ensuing year: President, James B. Brady; first vice-president, W. O. Jacquette; second vice-president, John D. Hurley; treasurer, C. E. Erikson; secretary, A. B. Holmes; directors, John P. Hopkins, W. O. Jacquette, James B. Brady, John M. Glenn, Simon Florsheim, C. E. Erikson, John D. Hurley, J. J. McCarthey, and John R. Turner. The company reports that business during the past year showed a remarkable increase, it being at the present time several months behind on orders for Thor pneumatic tools and appliances. A large plot of ground has been purchased adjoining the plant at Aurora, and a large building will be erected thereon as soon as practicable and equipped with the latest improved machinery suitable for the manufacture of pneumatic machinery. While the domestic business has shown the greatest increase, the company has enjoyed a much greater demand for pneumatic tools from abroad during the past three months than any period since its organization.

The Chicago Beer Pump Company, Chicago, is making improvements to its factory and is in the market for the following machinery: One 6-ft. brake, one 30-in. folder, one 36-in. squaring shears, one 30-in. forming rolls, one adjustable power press, one wiring machine, one small turner, one large burr, one Beakhorn stake, one swivel vise and one circle shears.

The Milwaukee Electric Railway & Light Company, Milwaukee, Wis., according to a statement made by its president, John I. Beggs, will begin next spring to build its own cars for city use. Shops are being erected on Fond du Lac avenue and Twenty-seventh street, and when ready for use it will be possible to turn out one coach a week, which will supply the demands of the local traction company. An order of 75 coaches is now being delivered to the company by the St. Louis Car Company.

G. M. Ditto, Joliet, Ill., is in the market for a second-hand drill press, 20 to 24 in., a large emery wheel stand, and 15 to 16 in. shafting and couplings.

The Lyon Metallic Mfg. Company, Chicago, manufacturer of steel bins and general shop equipment, has removed its factory and general offices to Aurora, Ill. A branch office will be conducted at Chicago at 1211 Marquette Building, with L. Wilkinson in charge.

Philadelphia Machinery Market.

PHILADELPHIA, PA., October 2, 1906.

Sales during the closing week of September improved materially, and the average volume of business transacted by the local manufacturers and merchants during the month has been generally satisfactory. In some cases record sales have been made, while in other instances the total has been fully up to the expected amount. Most of the business recently closed has consisted of orders for single tools. Of the few sales agggregating lots of tools the most important probably was that of an equipment for an addition now being built to the machine shop of the York Street Railway, York, Pa. The Pennsylvania Railroad has had a few inquiries for tools in the market, while scattering orders for one or more tools have been placed by several other railroad companies.

The demand for machinery and tools continues very large. Inquiries have, if anything, increased and manufacturers and merchants are busy estimating on work. There appears to

be some tendency on the part of prospective buyers to break up their specifications, rather than offer them in a lump, it being their expectation that deliveries on the smaller lots could be obtained more advantageously than when offered in bulk. The Atlantic Coast Line now has specifications before the trade for the equipment of its shops at Waycross, Ga., which are understood to call for quite a good lot of tools. A Baltimore concern has asked for bids on quite a good number of lathes, mostly of the smaller and medium sizes. Several pretty good lots of tools for local concerns are also being estimated upon, but there seems to be a general delay in closing up business. This condition is attributed largely to the long time required for delivery of tools, and prospective buyers will not close as a rule until all possibilities of better deliveries have been investigated. The delay in obtaining raw materials is in some cases increasing, and this, together with the scarcity of competent help, makes it difficult for some manufacturers to produce as large a number of tools as they could were these conditions more favorable.

The foreign demand for special tools and equipment continues particularly good, orders having been booked for quite a number of such tools. Orders for a number of special portable tools for shop repair work have been taken, while the volume of export business in special equipment for power transmission has increased considerably. There is no change in the export demand for the standard machine tools, but local manufacturers are so crowded with domestic business that little attention is being paid to this branch of the trade.

Boilers and engines are in better demand. Several propositions for high power installations for electric railway power plants are under consideration, and are expected to close soon. The immediate local demand, however, is rather flat, most of the business before the trade of this class being for out of the city. Sales of the smaller engines and boilers are somewhat better, although there is still room for improvement along this line. The second-hand boiler and engine trade is only fairly active and reflects conditions governing the demand for new equipment.

The second-hand machinery market continues active. The demand has been large, and covers a full range of tools and machinery. In some lines it is hard to get satisfactory tools, as dealers have been pretty well sold out of desirable sizes. Stocks, however, are being fairly well maintained, and many prospective buyers are taking on such tools, if for temporary use only, as cannot be had from manufacturers except on long delivery.

The activity of steel and iron foundries continues unchanged. The demand for iron castings is very large, and in some instances manufacturers of machine tools complain of their inability to obtain good deliveries from the local plants. Foundrymen, however, are working at their best capacity at the time, and the tonnage before the trade is probably as large as was ever offered. Steel casting plants are being operated to the limit of their capacity and still are unable to meet the demand or the delivery desired by the trade.

The Baldwin Locomotive Works has let the contract for the construction of a new one-story erecting shop (previous mention of which has been made in these columns) to Roydhouse, Arey & Co. of this city. The new shop is partly located on the site of the foundry formerly operated here by the Baldwin Works and will measure 62 x 151 ft., with a rear wing 65 x 99 ft. Work on the building will be started at once.

McCambridge & Co., manufacturers of plumbers' supplies, have taken possession of a new factory building, 320 to 326 North Twentieth street, which will be used for manufacturing and general business purposes. Extensive alterations will be made to the building, and it is understood that a considerable amount of new machinery will be required for the equipment of the new plant.

The Schutte & Koerting Company is about to install a 75-hp. gas engine and a 150-hp. suction gas producer for power purposes at its local plant. A complete electric plant, so as to enable the company to furnish its own light and power, will also be installed at a later date. This company is very busy on all classes of work, and has among other orders under completion one for 72 stop check valves for the power plants of the Boston Elevated Railway Company. Some 20 or more atmospheric relief valves, 20 in. and 12 in. sizes, will be furnished the Bethlehem Steel Company for its blowing engines, while a number of 36-in. valves of the same type are to be supplied the Philadelphia Rapid Transit Company for its Delaware Avenue power house. Throttle and trip valves for large turbine engines are also being furnished most of the builders of engines of that class.

The Standard Pressed Steel Company has recently established agencies for its American Pioneer pressed steel shaft hanger with Arnhold Karberg, in Shanghai, China, for that territory, and with Castle Bros., Wolf & Co., Manila, for the Philippine Islands. This company is particularly busy on both foreign and domestic orders, which have increased materially the past month. Shaft hangers of various sizes have been exported in quantities recently to France, England, Australia, Denmark, and Germany, while domestic shipments, which have been very heavy, include one of 580 hangers for the equipment of three textile mills in the Chattanooga, Tenn., District.

I. H. Johnson & Co., Incorporated, are running their plant to its capacity. The demand for all sizes of lathes is very large, and orders have been booked for tools which cannot be delivered for months ahead. Orders have been recently taken from several of the large steel works for extra heavy lathes of large size, while other orders for smaller tools have been received from a varied list of customers. A heavy 60-in. lathe has been shipped to a customer on the Pacific Coast. A 54-in. lathe, with a long bed, has been furnished for equipment to Porto Rico, while a number of 30, 24 and 18 in. lathes have been shipped parties in various sections of the East.

H. B. Underwood & Co. continue very busy. The month of September has been one of the largest months, in point of orders, received in their history, and every department is being operated at its capacity. Both the foreign and domestic demand for portable shop tools has been very large, while that for general repair work has been exceptionally so. The railroads have been extensive buyers of portable tools recently, one New England road taking two rotary planing machines, one portable cylinder boring bar for compound engines and two hot-air motors, while a Western road placed orders for one rotary planing machine and two 2-cycle air motors. Recent shipments for export by this company include a lathe boring bar, two portable boring bars, and one rotary planing machine.

New England Machinery Market.

WORCESTER, MASS., October 2, 1906.

The advance in the price of machine tools has further extended the past week, the manufacturers of drills, both upright and radial, having added 5 per cent. to their prices. This advance is quite general, judging from the notices which have been received by the dealers. The 5 per cent. increase has now affected lathes, planers, milling machines and drills. Other advances have been noted. The advance is not confined altogether to these classes of machines, as certain tool builders have increased prices on their entire lines, including other machines, and individual instances have occurred where other lines have gone up, including certain sensitive drills. It is anticipated that the 5 per cent. will have been added to the price of still other machine tools within a short time. The same conditions which have resulted in greater cost of production apply to all lines of machine tool manufacture, so that there would seem to be no reason why the advance should not become universal.

The dealers state that the past week has been an exceptionally good one, orders being placed freely, in spite of the increase in prices and the condition of deliveries. There had been some apprehension expressed in the trade that the higher prices coming on top of other recent advances would have a tendency to scare off customers, but it seems that the contrary is true. The fact should not be lost sight of that in practically every line of metal industry the demand for the products is so great that new machinery, even at a high price, brings returns which more than compensate for additional expense. There may be exceptions to so general a statement, but taken as a whole it is true. Consequently it was not to be expected that a change in prices of 5 per cent. would have a diminishing effect upon the demand.

The automobile manufacturers will probably be good customers of the machine tool people during the next six months, although their new equipment planned for the manufacturing season has already been ordered and much of it delivered. Their order books are beginning to show that they have not put their output of 1907 machines as high as they might have, though some of them have very greatly increased the number of machines to be built as compared to last year's total. One manufacturer will build 2000 automobiles for next year's trade, and already it has been found that probably another thousand could be disposed of without pushing very hard, for most of the 2000 are already spoken for. The same general condition exists among other established companies. Quite probably the demand will result in the attempt at a still greater output, which would mean corresponding increases in equipment. The great demand, which will probably not be fully taken care of by the existing automobile manufacturers, will give the newly established factories the opportunity to get a place in the market and establish their machines. The automobile people are always buying machinery to a greater or less extent, in addition to the lists which provide for general increases in planned product.

The demand in New England for all sorts of quarrying machinery and implements is without precedent. Compressors, drills and other pneumatic tools, hoists and cranes, surfacers and other stone working tools are being ordered

at a rate which promises to make the year's business larger than any two or even three preceding years, it is estimated by the dealers. The greatest demand comes from the granite quarries, which are unusually busy, and which are being extended and new deposits opened. The Vermont marble quarries are large buyers, and orders are received for equipment with which to work the limestone formations. The brownstone quarries are absolutely dead, because of the stone going out of fashion as a building material, thus forming the single exception.

The Crompton & Thayer Loom Works, Worcester, Mass., manufacturer of looms, is to extend its shop building, the addition to be 48 x 70 ft. and one story. It will enlarge the machine shop. The company will have no list of machinery, its policy being to keep buying a machine or two at a time, the rapid growth of the business requiring almost constant purchases of tools.

The Worcester Steel Foundry Company, Worcester and Millbury, Mass., manufacturer of crucible steel castings, is to erect an addition to its plant and will install four new furnaces. This will largely increase the capacity of the works, which is greatly needed, because of the volume of business in hand. It is the plan to build another and larger extension of the works in the spring, which will still further increase the furnace and floor capacity.

The Westmacott Gas Furnace Company, 161 Orange street, Providence, R. I., has been organized to take over the business of the J. M. Westmacott Company of that city, manufacturer of furnaces for hardening high speed steels, jewelers' furnaces and other gas blast furnaces. The new company is organized under Rhode Island laws with capital stock of $15,000, and these incorporators: Annie I. Westmacott and Edward C. Joyce of Providence, and Arthur W. Joyce of Barrington. Henry D. Joyce is the general manager. The business has greatly increased during the past year, and present facilities are so taxed in taking care of orders that the company will increase its equipment, and in the near future will be in the market for upright drills, engine lathe and pipe cutting machines.

The Barnard-Briggs Motor Car Mfg. Company has purchased the business of the New England Automobile Mfg. Company, 27 State street, Boston, and will occupy the factory building at Woodville, Mass., which was formerly used by the Woodville Shoe Company. The new company is said to be substantially backed, and a recent meeting of directors authorized the expenditure of $100,000 for new machine equipment. The building contains an adequate power plant. A full line of pleasure and commercial motor vehicles will be manufactured, the plan including a large annual capacity. The company holds patent rights for automobile mechanisms, which will be included in the car now manufactured by the New England Automobile Mfg. Company.

The New York, Brockton & Boston Canal & Transportation Company has been formally organized at Brockton to build the Cape Cod Canal, connecting Boston harbor with Narragansett Bay, under an act of the Massachusetts Legislature at its last session. The plans are subject to the referendum of the cities and towns along the route under the act, and until the voters have acted in the matter nothing can be done beyond preliminary work. The officers of the company include a number of prominent and wealthy men, among them former Governor William A. Douglas of Massachusetts. The canal as planned would cost $1,000,000 a mile.

The Hubbard Motor Company, Middletown, Conn., manufacturer of gasoline engines for marine, automobile and stationary purposes, is to occupy a new factory which will be erected for it at North Main and Stock streets. The building will be 50 x 200 ft. and one story. The company had planned to leave Middletown, but a local capitalist decided to erect the new building for its occupancy, which settled the question. The company's engines are of both the two and four cycle type.

The Connecticut Railway & Lighting Company is planning to make important enlargements of its power facilities. It is proposed to expend about $700,000, and the work will include a new reservoir, with costly dam on the Housatonic River, to provide power for a large hydraulic plant, and a steam plant will be established at Waterbury to be used in case of breakdown.

The Boston & Northern Street Railway Company is to erect a large power plant at Lynn, Mass., to cost above $100,000.

The New York & Boston Electric Railroad Company has been incorporated in Massachusetts to construct a new electric line from Boston to New York by way of Providence. The enterprise seems to have an excellent foundation, judging from the list of names which appears in a certificate to the Massachusetts Railroad Commissions to show that a public exigency exists for the construction of such a road. The names of the petition stand for conservative business interests, and the mode of procedure, through the Railroad Commission, indicates the intention of building an electric railway along the lines of steam railroad construction. The estimated cost of such a railroad is $20,000,000, which would provide a double-track line between Boston and New York, with adequate power to give very fast time for passenger trains and excellent freight facilities. Business interests of New England would strongly welcome competition to existing railroads. However, the new plan has not progressed far enough to make it certain that it will be carried through. The obstacles are great. To make the railroad practicable the Railroad Commissioners and Legislatures of Massachusetts, Rhode Island and Connecticut will have to grant the necessary permission, and some means of entering New York City will have to be obtained.

Government Purchases.

WASHINGTON, D. C., October 2, 1906.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until October 9 for feed pumps, lathe, molder, motors and other supplies for the Eastern navy yards.

Bids will be received at the Bureau of Supplies and Accounts, Navy Department, Washington, until October 30, for grinder, motor hoist, pipe bender and other supplies for the Mare Island and Puget Sound navy yards.

The Bureau of Yards and Docks, Navy Department, Washington, will receive bids until October 13 for six water-tube boilers, feed water heaters, pumps, &c., for the Norfolk Navy Yard.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until October 30 for the following machine tools for the Portsmouth, Boston, Washington and Norfolk navy yards: Schedule 179, lathes, drill, slotter; schedule 180, band saw; schedule 181, lathes, grinders, drill, borers, centering machine, sand papering machine, saw bench, metal cutter.

The following bids were opened September 25 for machinery for the navy yards:

Bidder 1, Almy Water Tube Boiler Company, Providence, R. I.; 2, Advance Machinery Company, Toledo, Ohio; 20, Babcock & Wilcox Company, Philadelphia; 22, Brooklyn Forge & Supply Company, New York; 31, Crescent Machine Company, Litonia, Ohio; 50, Drew Machinery Agency, Manchester, N. H.; 53, Electric Dynamic Company, Bayonne, N. J.; 58, Fox Machine Company, Grand Rapids, Mich.; 61, Frevert Machinery Company, New York; 62, J. A. Fay & Egan Company, New York; 74, General Electric Company, Schenectady, N. Y.; 76, B. W. Geldart, New York; 79, Holtzer-Cabott Electric Company, Brookline, Mass.; 31, Handlan-Buck Mfg. Company, St. Louis, Mo.; 105, Mitts & Merrill, Saginaw, Mich.; 110, Manning, Maxwell & Moore, New York; 120, Niles-Bement-Pond Company, New York; 122, Oliver Machinery Company, Grand Rapids, Mich.; 125, Prentiss Tool & Supply Company, New York; 132, Ricketts Engineering Company, Washington; 143, H. B. Smith Machine Company, Smithfield, N. J.; 144, Sprague Electric Company, New York; 154, Sweeten-Crossen Electric Company, Philadelphia; 173, Vandyck-Churchill Company, New York; 179, Warner & Swasey Company, Cleveland, Ohio; 181, Westinghouse Electric & Mfg. Company, Baltimore, Md.; 183, B. F. Sturtevant Company, Hyde Park, Mass.

Schedule No. 122.

Class 31. Machinery for carpenter shop—Bidder 2, $195.50, part; 31, $347.50, part; 62, $4075.50; 143, $2631.20.

Schedule No. 123.

Class 41. One horizontal boring and drilling machine—Bidder 120, $2985; 125, $2698.

Class 42. One universal radial drilling machine—Bidder 110, $1575; 120, $1935; 132, $1598.

Class 43. One extension gap engine lathe—Bidder 81, $1925; 110, $1925; 120, $2536; 125, $2147.

Class 44. One engine lathe—Bidder 120, $1530; 125, $2078; 132, $1430.

Class 45. One precision bench lathe—Bidder 110, $1125; 125, $1100.

Class 46. One wood turning lathe—Bidder, 122, $384 and $306.

Class 47. One band saw filing machine—Bidder 58, $34.50; 61, $66, $71 and $76; 81, $52.80; 110, 122, $34.

Class 48. One automatic band saw setter—Bidder 50, $32.50; 58, $51.79; 61, $55; 81, $44; 110, $50; 122, $47.50.

Class 49. One tool grinding machine—Bidder 61, $220; 81, $239; 110, $245; 120, $265 and $300; 125, $140.

Class 50. One automatic planer knife grinder—Bidder 50, $85 and $100; 58, $100.47; 61, $117 and $308; 81, $220; 122, $141.50.

Class 51. One hand-power hydraulic bar straightener—Bidder 22, $597.40; 50, $624; 76, $619.50; 110, $625.

Class 52. One band saw—Bidder 31, $386.50; 58, $529.90; 62, $442; 110, $590; 122, $567.

Class 53. One hand planer and jointer—Bidder 31, $455; 58, $385.42; 62, $511; 110, $650; 122, $624 and $459.

Class 54. One universal tilting table double armor saw bench—Bidder 31, $530; 62, $594; 110, $600; 122, $576.

Class 55. One heavy panel surface planing machine—Bidder 62, $935; 122, $834.

Class 56. 1¾ hp. electric motor—Bidder 53, $274.95; 181, $226.

Schedule No. 124.

Class 62. One key seating machine complete with motor—Bidder 61, $850 and $850; 105, $965.

Class 65. One portable platform scale—Bidder 64, $53.90, $68.75 and $45.10; 147, $69.70.

Schedule No. 125.

Class 71. One toolroom planer—Bidder 110, $460; 173, $476.

Class 72. One boring and turning mill—Bidder 110, $1550; 120, $1960.

Class 73. One boring and turning mill—Bidder 120, $11,500; 125, $9364.

Class 74. One screw machine—Bidder 179, $1300.

Class 75. One screw machine—Bidder 179, $750.

Schedule No. 141.

Class 118. One motor generator—Bidder 79, $325.

Class 119. One generating set and spare parts—Bidder 74, $750; 183, $676.30.

Schedule No. 143.

Class 141. Five Babcock & Wilcox watertube steam boilers—Bidder 20, $39,511.

Schedule No. 145.

Class 181. One 20-hp. electric motor—Bidder 74, $483; 144, $437; 154, $450; 181, $383.

Class 186. One Almy watertube boiler, complete—Bidder 1, $885.

Under bids opened August 4 for power plant equipment for the Norfolk Navy Yard, the Ingersoll-Rand Company, New York, has been awarded contract for air compressors at its bid of $36,234. The bids for the boilers, condensers, feed water heaters were rejected, and the articles are included in the new specifications to be opened October 13.

The following awards have been made for machinery for the navy yards, bids for which were opened August 28:

J. Edward Ogden Company, New York, class 11, two electrically driven centrifugal pumps, $757.22.

Manning, Maxwell & Moore, New York, class 12, one high duty shaper, $1410.

Niles-Bement-Pond Company, New York, class 13, one combined horizontal punching and bending machine, $2929.35.

B. F. Sturtevant Company, Hyde Park, Mass., class 15, one electrically driven blower, $750.

Under bids opened September 7 for supplies for the navy yards, class 21, heating and ventilating apparatus, in building 18, has been awarded the B. F. Sturtevant Company, Hyde Park, Mass., $12,990.

Cast Iron vs. Steel Tired Car Wheels.

Referring to the fact that the unusual demand for freight equipment in the United States is duplicated in Europe, the *Railroad Gazette* says that the delivery of cars on the heavy orders recently placed by the Italian, Belgian and other European governments is hampered by the inability of the car companies to secure the steel tired wheels, of which four are used for each 15 to 20 ton car. While a few builders make their own wheels, the majority purchase them along with the axles from some German or Belgian steel manufacturer. Many of these steel makers are in turn dependent upon the tire makers, and some even purchase the centers as well, assembling and mounting the parts only. The process of manufacture is thus slow and expensive at best.

Discussing the question why Europe continues the almost exclusive use of steel tired wheels when a chilled iron wheel is not only less expensive but much more easily produced, our contemporary says: The chilled cast-iron wheel came into use in the United States at a most opportune time, the first expansion period both of the country and of the railroads, and has proved to be at once cheap and efficient. Chilled wheels are so easy to make that their use has enabled the railroads to obtain large numbers of cars on short notice, while their low valuation has reduced the investment. The eight wheels under an American 40-ton freight car represent an investment equal to less than that necessary for two wheels of the European type used under a 20-ton car. This means for us a smaller investment in rolling stock per ton carried, and either reduced freight rates or increased earnings, or both. The wheels can be made in almost any foundry, and the annual production runs into the millions. Any manufacturer can control his output absolutely and is not dependent upon some steel combination for tires, centers, &c. Give him the raw material and he will deliver the wheel. When the history of the development and economies of American railroads is written the chilled iron wheel should be given an honored place, as its low initial cost, ease of manufacture, efficiency and high scrap value have rolled up many a dividend which would not have been possible after the investment required by the use of steel tired wheels. Now that our equipment is becoming permanent and of higher capacity, the chilled wheel may possibly be relegated to secondary services, but let us not forget its past record.

There are several reasons why this wheel has never been used abroad, not the least being an old prejudice against the use of a casting where its failure might produce a wreck. There exists in most countries a law forbidding the use of cast iron for wheels. No one is interested in agitating the repeal of these laws, for the officials now serving found the steel tired wheel in satisfactory use when they came into office, and why should they run the risk of losing position and reputation by adopting something else? If the change proved a success they would reap no benefit, whereas one wreck traced to a wheel failure would carry with it the resignation and reputation of the sanctioning official. Moreover, since many foreign roads are owned by governments which fix freight rates by law, the matter of reduced investment is not important. The shipper is accustomed to high freight rates and is not influential enough to persuade the Government to change its practice and give him the benefit. Then, again, the European standard car wheel diameter is much larger than ours, averaging about one meter. Would the chilled iron wheel prove as efficient at this diameter as it has at 33 in.? It would be difficult, if not impossible, to reduce the diameter under the existing four-wheel equipment without serious expense; so until the double truck, permitting the use of a smaller wheel, is adopted, there is little chance of its introduction. It is true that Austria and Hungary use the chilled wheel to some extent, but cars so equipped are not accepted for interchange by other countries. Chilled wheels have also been used successfully in Spain on narrow gauge roads not subject to the same laws as those of standard gauge.

Some time this fall representatives of the different countries which interchange cars will meet at Berne to discuss and adopt standards. Could they be persuaded to sanction interchange of freight cars equipped with the chilled wheel it would undoubtedly lead to a more general use of this wheel in Europe, but until some move of this sort is made the governments will have to be content with slow equipment deliveries as well as heavy initial expense and investment.

The British Output of Bessemer Steel in 1906.

In the first six months of 1906 the output of Bessemer steel ingots in Great Britain was 919,620 gross tons. In the first half of 1905 the output was 1,019,887 tons, in the second half 989,825 tons, and in the first half of 1904 it was 865,683 tons. The falling off in the first six months of this year from the corresponding period in 1905 was 100,267 tons, or about 10 per cent. The distribution of output this year as between the acid and basic Bessemer processes is shown below in gross tons, and the comparison made with the first half of 1905:

	Acid Bessemer.	Basic Bessemer.	Total.
First half of 1906	634,838	284,782	919,620
First half of 1905	698,836	321,051	1,019,887

The output of Bessemer steel rails in the first half of 1906 was 487,184 tons, which is a decline of 53,130 tons, compared with the output in the first half of 1905. This reduction is due to the falling off in British rail exports, which for the first half of 1906 were 70,494 tons less than in the first half of 1905. Returns as to the production of other finished forms in Bessemer steel in the first half of this year are not complete, but reports show 14,773 tons of plates and angles, 82,961 tons of bars and 81,745 tons of blooms and billets.

Trade Publications.

Steam Pipe Unions.—Joseph Dixon Crucible Company, Jersey City, N. J. Pamphlet entitled "Unions for Steam Pipes," by W. H. Wakeman, being an illustrated description of the several varieties of unions, with valuable suggestions concerning them. This pamphlet is a reprint from *Graphite*, and will be sent free of charge to any engineer or steam fitter, or any one interested in steam pipes.

Motors.—Crocker-Wheeler Company, Ampere, N. J. Bulletin No. 67. Deals with form I-F variable speed motors of 1½ to 32 hp., and speed ranges of 2 to 1, 2½ to 1 and 3 to 1. Illustrations show this motor in connection with various machines, and tables of dimensions are given. These motors are made in horizontal and vertical types.

Oil Pumps.—Lavigne Mfg. Company, 130 E. Larned street, Detroit, Mich. Pamphlet. The Lavigne mechanical oil pump with micrometer adjustment is claimed to be the only one which indicates the amount of oil accurately in cubic inches which it delivers to each cylinder or bearing. The operator can vary the capacity of each stroke of each plunger by the 5-10,000 part of a cubic inch. Descriptive matter and illustrations explain its operation, and a complete price-list is appended.

Pneumatic Tools.—Ingersoll-Rand Company, 11 Broadway, New York City. Pamphlet, Form 6-A. Describes a line of pneumatic tools, including the Haeseler Axle Valve and Imperial chipping and riveting hammers; Haeseler rotary drills; Imperial piston drills; Haeseler yoke and jam riveter; MacDonald rivet forge; "Giv't-a-Twist" hose coupling; Imperial motor hoists and stationary motors; Little Jap and Little Imp hammer drills, and the Imperial Midget plug drill. Tables of capacities and dimensions are given of these tools.

Lightning Arresters.—Westinghouse Electric & Mfg. Company, Pittsburgh, Pa. Circular 1132. Describes and illustrates the various types of the Westinghouse protective apparatus.

Electrical Apparatus.—Wagner Electric Mfg. Company, St. Louis, Mo. Folder. Illustrates various types of electric motors, giving a key to the significance of the type letters and a few words in general as to the line.

Barb Wire Machines.—Wilber Emery, Oberlin, Ohio. Booklet No. 2. Deals with four types of barb wire machines, designated as A, B, C and D. A and C are equipped with mechanism for producing two-point wire, and B and D for four-point wire. The machines are claimed to be of unexcelled durability and capable of the highest speed and the largest production known to the trade.

Reamers.—F. B. McCrosky Mfg. Company, Meadville, Pa. Catalogue and price-list, in which the company calls special attention to the new patent adjustable bottoming reamer described in *The Iron Age* September 13, 1906. Hand reamers, adjustable machine reamers, adjustable hand reamers and adjustable shell reamers are also illustrated and described.

Gas Engines.—De La Vergne Machine Company, foot of East 138th street, New York. A 10-page folder pertaining to the Koerting four-cycle gas engine and suction producer. Its construction and operation are explained, and illustrations of the different types are given.

Steel Tanks.—Oswego Boiler & Engine Company, Oswego, N. Y. Bulletin No. 40. Deals with circular black steel tanks for gas, gasoline, air and water, for use as blow-off, receiving, drip, pressure or hot water tanks. A complete list of tanks ranging from 18 to 60 in. in diameter is also included.

Mine Equipment.—Monongahela Mfg. Company, Monongahela, Pa. Catalogue. Size 6 x 9¼ in.; pages 36. Deals with machinery for the entire outside workings of bituminous coal mines, including haulage or hoisting engines, tipples, cages, mine cars, crushers and special machinery for the economical handling of coal. The illustrations show standard products, but special equipment is a feature of the company's business and contracts for such are invited.

Where the flywheel of a steam or gas engine is made with curved spokes it should be mounted upon the shaft so that the outer curve of the spokes is backward. This puts the iron of the spokes into compression in transmitting the power developed in the cylinder. If the reverse position is given the flywheel the spokes are put into tension in transmitting the power, which is not good practice in cast iron construction, although the rim is unavoidably always in tension, due to stresses caused by centrifugal action. Placing the wheel as above directed increases the stress in the flywheel rim because of the reaction of the spokes, but as the rim is always made much stronger than the spokes and is not so liable to weakening due to casting strains, this is a matter of little importance.

CONTENTS.

	Page.
The Scullin-Gallagher Iron & Steel Company. Illustrated.	853
The Casting of German Silver Knife Tips	857
Annealing and Crystallization of Steel. Illustrated	858
Fluorspar in Foundry Cupolas	859
The American Exporter's Methods	860
The Graham Piston Ring Grinder. Illustrated	862
The Indiana Rolling Mill Company	863
San Francisco Affairs	863
A Method of Bosh Cooling for Blast Furnaces. Illustrated.	864
A New Garvin Die Slotting Machine. Illustrated	865
The Foundry Supply Association	865
The Canton Duplex Elevator Pump. Illustrated	866
A Great Gas Producer Contract	866
A New Course of Instruction at Pratt Institute	866
The Anderson Automatic Float Valve. Illustrated	867
Recent Customs Decisions	867
The Buffalo Improved Exhaust Head. Illustrated	868
St. Louis Terminal Facilities	868
Repairing a Cracked Cylinder Head. Illustrated	868
A Billings & Spencer Double Triple-Geared Trimming Press. Illustrated	869
The Susquehanna Iron & Steel Company	870
The National Supply and Machinery Dealers' Association	872
The Reading Iron Company	875
Editorial:	
The Pre-emption of Mineral Reserves	876
Light Colors for Machine Tools	877
Advances in the British Iron Markets	877
Official Producer Gas Tests	878
New York Y. M. C. A. Courses in Building Construction	878
Obituary	879
Transporting a Large Telescope	879
The Patent Office Congestion	879
Eighty Feet of Stripping	880
Census of Foundry and Machine Shop Products	881
Labor Notes	881
Personal	882
News of the Works:	
Iron and Steel	882
General Machinery	882
Power Plant Equipment	883
Foundries	883
Bridges and Buildings	883
Fires	883
Hardware	884
Miscellaneous	884
The Iron and Metal Trades:	
A Comparison of Prices	885
Chicago	885
Birmingham	887
Philadelphia	887
Cleveland	888
Pittsburgh	889
Cincinnati	890
Metal Market	891
New York	891
The Coal Trade	892
Iron and Industrial Stocks	893
More New Steel Corporation Capacity	893
New Publications	894
The Machinery Trade:	
New York Machinery Market	895
Chicago Machinery Market	896
Philadelphia Machinery Market	896
New England Machinery Market	897
Government Purchases	898
Cast Steel vs. Steel Tired Car Wheels	899
The British Output of Bessemer Steel in 1906	899
Trade Publications	900
Hardware:	
Condition of Trade	901
Notes on Prices	905
Death of Albert Swan	908
Display Board in the Store. Illustrated	908
The E. A. Pflueger Company	908
Trade Items	908
Requests for Catalogues, &c	908
Factory Cost and Business Methods. Illustrated	909
Letters from the Trade	911
Entertainment at the Atlantic City Conventions	911
Miscellaneous Notes	911
Tool Chests	911
Chicago Pitless Wagon or Stock Scales	912
Champion High-Low Jack. Illustrated	912
B. & S. Magnetic Tack Hammer. Illustrated	912
Registering Saratoga Trunk Bank. Illustrated	912
National Inverted Gas Light and Automatic Regulator. Illustrated	913
A Ball Clutch Shade Roller. Illustrated	913
Keyhole Saw. Illustrated	913
The Superior Window Clothes Drier. Illustrated	914
Remington Autoloading Repeating Rifle. Illustrated	914
Current Hardware Prices	915
Current Metal Prices	922

HARDWARE

IT is generally conceded by Hardware manufacturers that the transaction of business during periods of abnormal activity does not net the proportionate profits that accrue from a smaller volume of sales during less prosperous years, and while the net earnings may increase, the average percentage of profit usually shows a decline. Price advances rarely cover the increased cost of labor and raw material, and operations generally require an additional expense that cannot be entirely charged to the finished product. Extensions to provide greater producing capacity to cope with increased demand are generally made when the consumption is at high tide and at costs far above those that prevail in times of normal trade. Conditions thus force the manufacturers to accept a smaller margin of gain than would seem in keeping with the conditions. The jobbers, notwithstanding the increased cost of goods, do not add to their margin to cover the cost of transacting business, which is also conducted at an additional expense owing to delayed shipments from makers and other difficulties over which they have no control. A temporary shortage of any line or brand on which a premium could be exacted from the retailer generally results in no change of price, although in most other trades the supply is the market barometer. The increment of trade likewise rarely nets the merchants an increased per cent. of profit, as the selling price of their goods is not often changed, regardless of trade conditions, and the marking up of any line on account of a shortage is practically an unheard of procedure. Thus the consumers are to-day paying practically no more for their Hardware than they did a year ago, and while the increased volume of business that has come to manufacturers, jobbers and retailers alike may show greater earnings the percentage of net gain as compared with other years will probably not be maintained.

It may seem a far cry from Government regulation of packing houses to the question of special brands in the Hardware trade. The connection, however, is not so remote as might appear at first flush, inasmuch as similar principles are involved in the marketing of the two widely separated classes of products. In both cases there is a large use of special brands, as the distributers of canned meats and Edge Tools alike have developed an extended sale of these goods, with names or labels controlled by them which do not disclose the real manufacturer of the products in question, but bear fictitious names, which in many cases are construed by the public as the names of the makers. There are, as we have pointed out, serious objections to this practice, and it is interesting to note that the Government in the rules recently promulgated in regard to labels for canned meats follows the principles which have been maintained by the opponents of special brands in the Hardware field. Thus in regard to trade labels and private brands it is provided in the rulings which have been given to the jobbers of meats through the Department of Agriculture, as follows:

> A trade label bearing a different name (firm name) than the establishment in which the product is prepared may be used, provided the label says "PREPARED FOR"—(Jones & Co.), and shows the number of the establishment at which the product was prepared.

If this principle were applied in Hardware it would not be permitted for a Saw or a Chisel to bear a jobber's name as manufacturer, but it would appear that the Tool was made for such jobber, and at the same time the factory at which it was produced would be indicated. There would thus be simply an honest statement of the facts in the case and not, as is so often the case at present, a brand, the effect of which is to leave the trade in ignorance of the actual manufacturer and frequently conveying a misleading impression.

Condition of Trade.

The prominent feature of the market at the present time is the increasing number of goods which are becoming hard to get, as the factories are unable to keep up with the demand from the merchants. Stocks which a month or two ago were well assorted are now becoming depleted, and much correspondence and telegraphing are called into requisition with a view to hurrying up shipments, thus adding not a little to the labor, and unfortunately as human nature is constituted, to the wear and tear of transacting business. The difficulty which merchants experience in obtaining goods comes of course primarily from the large volume of current business, but the failure of the manufacturers to meet the demands made upon them even with their great facilities is owing in part to the fact that they cannot obtain Steel in sufficient quantities, and to the delay which occurs in transportation, inasmuch as on the one hand manufacturers are slow in receiving raw material shipped them, and on the other hand their shipments of the finished product are almost uniformly slow in reaching their destination. It is scarcely necessary to say that under these conditions the market is decidedly firm, as Iron and Hardware products, in common with merchandise generally, show an advancing tendency and an almost constant trend toward higher prices. Conservative manufacturers and merchants endeavor to resist this tendency, knowing well the dangers which are involved in the establishment of an abnormally high range of the cost of living and of the things which are employed in improvements, in building, and in industrial development, the effect of which before long, if the movement be carried far, must be to restrict enterprise and bring about a mischievous reaction. How to keep things back and avoid inflation in values is one of the great problems which confronts the country. The existing prosperity fortunately is great, and it is to be hoped that the gradual operation of natural causes may keep prices in check. The difficulty experienced in collections is undoubtedly doing good work and exercising something of a restraining influence. The marked increase in export business is one of the gratifying features of the situation, but in view of the heavy pressure of domestic trade it is important that merchants should not neglect the proper care of their foreign customers nor relax their efforts to extend their foreign business.

Chicago.

The shortage of fall and winter goods is being accentuated from week to week as a result of delayed deliveries from manufacturers, and the scarcity of many lines is acute, particularly heating accessories. The heavy rains which prevailed last week throughout the West and Southwest may temporarily delay outdoor work, but the increased demand for other goods owing to this inclement weather will easily overcome the curtailed consumption of these lines. Reports from Stove manufac-

turers indicate that the fall movement has been heavier than last year, and the large stocks made up earlier in the year are moving rapidly on orders placed during the last two months. From the Northwestern States filling in orders for all classes of Heaters are already being received, but in other sections the season has not yet reached this stage. The sales of high grade Stoves have exceeded all records, but makers are prone to attribute this to the general prosperity of the country rather than a growing desire on the part of the consumer for first-class goods. While no price advances have yet been made, the retail trade is being felt to ascertain the advisability of such action, and in view of the general upward movement of Hardware lines, which has been more pronounced during September than any previous month of the year, it is believed that higher values will not meet with the same spirit of resentment as the previous announcement made about the first of the year, which was promptly withdrawn. Competition in Steel Ranges, due to the large number of manufacturers that have engaged in this line during the year, is greater than at any time in the history of the trade, and prices are gradually being forced to a lower level. Sales although satisfactory are on a basis that do not begin to net the maker a fair profit, and until consumption overtakes production this condition will continue to exist. Stocks of Heaters carried over by retail merchants on account of the mild winter have not figured prominently in purchases for the present season, and provisions have been made for an abnormal demand. Distributers of Heavy Hardware report large sales of all classes of goods for forward shipment. On Horseshoes the leading interest is unable to make shipments in less than six weeks from receipt of order, and deliveries of Merchant Iron and Steel are similarly delayed.

Philadelphia.

SUPPLEE HARDWARE COMPANY.—What we would say at the present writing regarding trade conditions will largely be a repetition of what we have reported in our semimonthly letters to *The Iron Age* thus far during the entire year of 1906—namely, a continuation of unusually good trade, and had we not during the last months of 1905 and the earlier months of 1906 anticipated largely increased trade and made early purchases accordingly we would not have been able to do justice either to ourselves or our customers.

Owing to the increase in trade many manufacturers during the year have found it difficult to supply the requirements of the country. Some report it is largely owing to the difficulty in obtaining additional experienced workmen, and while 1,000,000 emigrants have reached this country during the past year and about the same number the preceding year, but few of them are experienced mechanical workmen and but few of them have made any effort to gain experience in that direction. Those of our own population who are daily reaching an age to begin work must have experience before they will be valuable in that direction. Many manufacturers during the last two years have been largely increasing their production, but find it very difficult to obtain the right sort of workmen.

The great increase in the demand for manufactured products is aided by increased export trade, but the wonderful growth of the agricultural products of the country has been the great cause of the extension and increase in trade.

Referring to the improved conditions during the last few years the various managers of railroads have had experience scarcely realized by the average shipper. A few years ago we referred to the fact that the Pennsylvania Railroad alone had ordered some 1000 freight cars; a year later we referred to the fact that some 2000 had been ordered by that road to help out on delayed shipments. It is now stated that the Pennsylvania Railroad Company has entered into a contract for over 13,000 new freight cars at an estimated cost of $15,000,000, and it is reported that the company has ordered in all this year, including the above, some 35,000 freight cars, which are being delivered at the rate of from 50 to 100 a day, over 17,000 having already been delivered and placed in active service. In addition to this it has recently ordered some 500 steel coaches at an estimated cost of some $5,000,000. It is also reported that the New York transportation companies have entered into large contracts. The amount of money expended on these cars is but small compared with the Pennsylvania Railroad improvements, on which an estimate of from $100,000,000 to $150,000,000 is probably under the actual figures. Looking further into the matter, the expenditures of the various railroads throughout the country are enormous.

Taking into consideration the increased trade of the manufacturers, which naturally extends to the trade of the wholesale merchants, usually called jobbers, and the retailers of the country, with the greater agricultural products, the increase of cotton products throughout the South and the underground output and large use of money by the railroads, it is not surprising that money is in such demand and brings an increased rate of interest. It is reported that some $250,000,000 of bonds and stocks is held by the national banks, trust companies and brokers awaiting more favorable opportunities to place them for regular investment upon the market. It is estimated that some $60,000,000 in cash will be required to enable the farmers to gather their crops. This is based on the large amount of agricultural products, including some 700,000,000 to 720,000,000 bushels of wheat (and the reserve stock in the hands of both the farmers and transportation companies will bring the amount up to nearly 800,000,000), and the estimated corn crop of between 2,750,000,000 and 3,000,000,000 bushels. The Secretary of the United States Treasury, evidently realizing this, has decided to place $26,000,000 of money with the banks in large cities, secured by a deposit of Government bonds, in order to aid the money market.

It is also estimated that during the month of October over $100,000,000 in dividends and interest due will be paid out by the railroads, manufacturers and industrial enterprises. But we must take into consideration that quite a portion of this amount may already have been borrowed from the banks, but beyond this the banks will be called upon to temporarily aid in loans. It is estimated that over $275,000,000 was spent during the first half of this year in 20 large cities in erecting new buildings. What additional amount was invested in the smaller cities and towns, and what amount will be required during the last six months of the year, it is difficult to estimate. It is no wonder the Lock manufacturers are overrun with business. Taking all these matters into consideration, we really feel it is time that Congress should further take up the question of how the circulation of our national banks can safely be increased.

All our country has been in sympathy with the conditions and misfortunes brought about by the earthquake and fire in San Francisco, and quick financial aid was extended both by the United States Government and the people. The $100,000,000 due the residents of San Francisco, caused by loss and already paid them by the insurance companies, will largely aid in the restoration of buildings and merchandise, and we hear a still further amount is to be paid; but the loss of life and suffering cannot be eliminated by money. The misfortune in Pensacola, Fla., and Mobile, Ala., has recently wrung the hearts of the residents and has extended to sympathizers all over the country. There probably is no country in the world where such national sympathy is felt when misfortunes of this nature occur as in the United States. The recent trouble in Cuba is now not only agitating the minds of our President and his Cabinet, but extends throughout the country at large, and we all hope for a quick termination of the difficulties.

With all our prosperity there is truth in a recent statement made "that life to-day carries with it greater responsibilities, more care and heavier burdens."

In a recent vacation trip of the writer to Nova Scotia and Cape Breton he was quite pleased with the interest shown by the inhabitants in visitors from our country and especially the interest they showed regarding our agricultural products. The farms in that country are largely confined to apple raising, which fruit is grown and exported to England. The other farm products are only

sufficient for home use. Fishing, however, is quite a profitable industry, and it is quite a section for visitors from the United States to go for fishing and to spend their vacations. It is an interesting country in which to spend a few weeks in summer travel, as the climate is both cool and invigorating.

Omaha.

LEE-GLASS-ANDREESEN HARDWARE COMPANY.—The favorable conditions that have characterized our reports for some time past on the state of trade in the Trans-Missouri region still hold true. The weather continues propitious for ripening corn, and everybody predicts a bumper yield. Good crops are always desirable, and with another abundant harvest Nebraska will be placed in an enviable position that will make her noteworthy as one of the most prosperous States in the Union. The splendid crops of the past few years coupled with the immense yield of the present season promise to develop a healthy volume of business for many months to come.

The Hardware market is remarkably firm, with advances in price on Nails, Wire, Fencing, &c., and with a probability of advances on other goods. Industrial and commercial activity is well maintained, and the general outlook is essentially favorable. The prosperity of the country appears to be on a substantial basis.

St. Louis.

NORVELL-SHAPLEIGH HARDWARE COMPANY.—Business conditions continue at the same high level that has been the rule for the past two months, although in many portions of the South and Southwest there seems to be some well grounded complaint in regard to the condition of the cotton crop. This is not, however, general, but comes from many different localities. In spite of this we believe the cotton crop will be abundant.

This has been a most remarkable year for volume of business in all lines; everything has been at high pressure since January 1. On September 19 the gain in sales of this house over the year 1905 amounted to $1,000,000—and the "flags went up."

We are not alone in this increase, and we believe it behooves all jobbers to get upon a higher level of profits while conditions remain so favorable. The scarcity of goods, the high rates for money and the increased price of all commodities make it necessary to rearrange our sights, because what we used to consider a fair profit is really a loss under present conditions.

We are glad to note the manufacturers are not disposed to boom prices, and congratulate them.

Nashville.

GRAY & DUDLEY HARDWARE COMPANY.—We have had both Secretary Leslie M. Shaw and William Jennings Bryan with us in the past 10 days, and we have been very busy digesting what each had to say from his viewpoint. We are still troubled over the financial situation; not from what either of these gentlemen said, but because collections do not pour into us quite fast enough (though collections are good). Orders are heavy and business in general is much heavier than in any former period. It requires more money, and we were really too busy to have a talk with Mr. Shaw as to how we should get immediate relief.

As to the railroads we have no serious grievance against them, at least not to the extent that we should like to have them change hands, except that the Southern Hardware jobbers might control. We would not care for the nation to take charge. The only kick we have to register just now is that we cannot get deliveries after much delayed shipments have left the mills.

The South has for the past few weeks had more than her share of rain, at least more than we need. As a result the crops are being damaged to some extent and some sections rather seriously, not enough, however, to affect the general prosperity at the South.

The labor situation is growing very serious; all the manufacturing plants are running at full tilt and many of them are crying for more help. Railroads building and old ones making improvements are calling for more labor. The price being offered is more than farmers can afford to pay, and there is great fear lest the cotton crop be left in the field, at least a very great portion of it. The situation is at least more serious than the South has ever faced before, but there are more laboring men coming to the South, earning more money and having more money to spend with the dealer.

The dealer is happy and prosperous, and he in turn is loading the jobber and manufacturer with orders.

Louisville.

BELKNAP HARDWARE & MFG. COMPANY.—It is the same old story we have been telling week after week of strong demand, slower deliveries, prices which can hardly be restrained within prescribed limits. The demand is so urgent that consumers are more than willing to pay in many cases a premium for prompt delivery. There is great confidence in the future, too, as evidenced by proposals to contract far into the next year on heavy and constructive material.

Only two features are adverse—one the disturbance of negro labor by outbreaks, such as that in Atlanta a week ago when race antipathy ran riot and murders were dealt out to inoffensive people without any apparent compunction. We should like to believe that it is all over, as some of the dispatches say, but there are bound to be outbreaks at intervals unless the officers sworn to keep the peace are very much more faithful. They are often thoroughly unfit for their duties. Their nominations or elections may have been secured unfairly at primaries or elsewhere, and a trial like this finds them at the crucial moment entirely devoid of calm judgment, courage or conscientiousness.

The other depressing news is of extreme rainfall and storms which prevail in this part of the country, and which have in certain sections played havoc with cotton, which was barely under way in the picking. The full extent of this damage at the present writing is unknown, but we had already begun to hear grumbling over the excessive wet before the West India hurricane swept the Gulf Coast and up through the States to the Ohio Valley.

In the meanwhile building in the cities goes on at a great rate, large and small buildings, office skyscrapers and modest dwellings, brick sheds and car barns, everything that one could think of is under contract and being pushed to completion. Had it not been for the very high rate of money there should have been a world of speculating, but the full rates demanded and accepted have acted as a salutary restraining influence. As it is, however, if those who have been carrying the amounts are called on to pay, but are unable to do so, it might bring trouble later on. It will be rather wonderful if it were not so. Meanwhile the banks and money lending institutions generally are reaping a fine harvest of fat discounts.

Cleveland.

THE W. BINGHAM COMPANY.—The report of the chief of the Department of Commerce and Labor as to what Uncle Sam's manufacturers are doing to increase foreign trade is quite interesting. He says: "We sold to foreign countries more than one billion seven hundred million dollars' worth of goods during the year ending June 30, and of this more than six hundred million dollars consisted of manufactured goods. It used to be that most of our wealth came from the farm, but to-day we have about ten billion dollars invested in manufacturing plants, and these plants are turning out something like fifteen billion dollars' worth of goods every year. This enormous product is more than we can consume, and if our plants throughout the United States are to be kept busy we must increase our markets for our surplus goods abroad."

Now the burning question before our legislators is, How shall we accomplish this and yet not disturb our business relations among ourselves and foreigners? Isn't it conceded that this grand state of affairs has been brought about very largely by our protective tariff laws, and in view of the fact that we are so prosperous at the present time, would it not be wise to let well enough alone and continue in the same groove of prosperity indefinitely? Isn't it a question that must be approached with a great deal of caution rather than in a roughshod,

crosscut way, as some would have us do, that we may not disturb the present happy, successful and profit paying conditions?

The manager of one of the largest Canadian banks is reported as saying: "We expect to maintain high duties against the United States, for our prosperity is largely founded upon protection."

Why should we not build up our own country and maintain our present high standing by the same means? Can we do better than to "stand pat"? Can we afford to disturb present business relations? Watch the prices of our commodities as they are going upward from day to day and notice the wages that the skilled artisan and the common laborer are getting to-day. Is it safe or judicious or reasonable to think of changing these conditions?

For example, what do we care if an American manufacturer sells, for instance, his Shovels to a customer in foreign countries at $3.50 per dozen and charges us for the same Shovel delivered in this country $4 per dozen, when we know that the skilled workmen and common laborers, whose brawn contributes so largely to the making of the Shovel, get the same price per hour, per day or per piece (whichever scale they may be working on) for the Shovel that is sold and goes to foreign countries as he does for the Shovel that remains and is sold and used in this country?

Doesn't it strike you that unless a manufacturer has a dumping ground for his surplus stock there is no incentive for him to run his factory full blast, unless he can sell his full output either at home or abroad, and the tariff protection he gets enables him to do this? Isn't it best to go slow?

We are led to make these remarks in view of the splendid trade that we are having in all our borders and the continued advances in raw material and supplies of all kinds and labor, compelling the manufacturers to withdraw old quotations and to quote only on application. This proves very conclusively to a thinking man that there is some good reason for all this prosperity.

The question comes home to us, To whom shall we give credit for all this? We think partly to good crops, partly to the good sense of manufacturers in holding prices steady and not being stampeded and advancing prices unnecessarily, thereby holding the trade in this and foreign lands. While we should give due credit to the farmers for the great crops that through the aid of Providence they have been able to harvest, should we not give due credit to our legislators for enacting such laws and tariff restrictions as have helped in a great degree to bring us wealth and prosperity?

Understand, please, that this is not a political lecture, but simply a little common sense injected into our daily thoughtful lives.

Again we advise our friends and customers to buy liberally while they can of their jobbing friends all kinds of manufactured Hardware, especially in the Shelf line, such as Builders' Hardware, Mechanics' Tools, &c. Buy larger quantities also. If you want to divide up your trade among the salesmen who represent the different good houses that you trade with buy fewer items, but larger quantities of each one of the articles that you do buy. If you do so you will not be continually out of goods and obliged to punch up your jobbing friends to be more prompt in shipping, for a limited line in good quantities is much easier for a jobber to supply than double or triple the number of items in small quantities.

St. Paul.

FARWELL, OZMUN, KIRK & CO.—The run of business for September has continued about as expected. Too much rain has fallen in some sections and threshing and plowing have consequently been delayed. In other parts the weather has been more favorable and threshing is well along. Upon the whole the situation is favorable and every week is counting largely. Yield of grain of all kinds is fair—somewhat below expectations but still satisfactory, and best of all, it is generally well distributed, so that business in all sections will go along in about the usual way.

The greatest drawback now is the difficulty in getting goods, not only from the factories, but also in the very unsatisfactory deliveries by the railroads. It would seem that there has never been anything like the present congestion of the railroads. It used to be said that it required about three stocks of goods to carry on a business—one stock in the house, one on the books representing the goods sold to customers and not paid for, and the other stock covering the goods in transit or being assembled by the manufacturers on orders. Under the present conditions we may figure this third stock as about double the amount it usually is. This adds to the work and expense of keeping up stocks and causes much inconvenience and dissatisfaction. The retail merchants, in turn, have their troubles in getting goods, especially in having deliveries from the railroads, and they find it necessary to order earlier and in larger quantities than usual.

This remarkable period of activity extends to other nations, and especially to those that are close competitors with us in manufactured products. It will probably last as long as we can have good crops and also have the great body of people in factories, mines, lumber industries, &c., engaged in steady employment at remunerative wages.

The great danger ahead is that wages and prices generally (including the scale of living) will be crowded up to such extent as to check building and industrial enterprises. This danger is growing in strength, and it has been specially marked in the last 60 days. The tendency in this direction should be carefully guarded against and large advances in nearly all lines of goods should be avoided. Certain goods doubtless require some advance, but in the general way prices are now high enough, and to advance them to any considerable extent will result certainly in checking consumption, and dull times and lower prices will then come in.

Portland, Oregon.

FAILING, HAINES & MCCALMAN.—The condition of fall trade is very encouraging, there having been no lull whatever during the harvest season. About all the grain is now in, and the last of the hops will be gathered this week. The rains of two weeks ago did not last long enough to seriously damage the hop crop, so that practically a full yield will be secured. Building is active locally, and Portland and the State generally are showing remarkable growth. The wheat ships are being chartered as rapidly as they can be secured, and the new crop is now being loaded for foreign ports. Collections still continue good, and prospects were never better for a first-class business during the remainder of the year.

Baltimore.

CARLIN & FULTON.—The activity of trade still continues, and is confined to no one particular line of business but seems to be general. The immense purchases of rails and railroad equipment, the requirements for the gigantic municipal and national improvements going on throughout the entire country, the necessities of agricultural sections, and the general increase in building operations everywhere, added to the everyday demand for Tools, Implements and material of all kinds, have combined to make the manufacturers busy beyond all anticipations, and the result is shown in the tendency of the market toward higher prices, the scarcity of goods, as well as the scarcity of labor, added to which is the annual shortage of transportation facilities.

Nearly every mail brings a notice of some advance in price, while a decline is a rare exception. This condition of the market is not the result of combination or of speculation, but seems to be the result of a legitimate demand and an inadequate supply, which conditions are the true basis for prices. We see no reason for any reaction in prices until production is in excess of the demand for goods, which is hardly apt to be the case for a long time to come.

NOTES ON PRICES.

Wire Nails.—The scarcity of steel is restricting the output of many of the mills. If they could all be operated to their full capacity they would probably be able to convert into Nails a third more steel than is at present obtainable. Demand is in excess of the output of the mills and they are consequently behind in deliveries, although recent shipments have been very large. It is understood that official prices are being firmly maintained, and under existing conditions there seems to be no good reason why they should not be. Quotations are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers	$1.85
Carload lots to retail merchants	1.90

New York.—Shipments of Wire Nails from mill are being received by the local jobbers with a fair degree of promptness and demand continues good. Quotations on small lots at store are on the basis of $2.05 per keg, with $2.10 occasionally asked.

Chicago.—The Steel scarcity and shortage of cars have reduced the forward movement of Nails to jobbers throughout the West and Southwest to the minimum, and stocks at such central distributing points as Denver, Salt Lake City and San Francisco are practically depleted. It is believed that with the advent of cooler weather this month's Steel production can be somewhat increased, with a proportionate increase in the output of finished material, but this added tonnage will only be small, as compared with the demand. Mill deliveries are generally delayed from two to three weeks, and some of the independent manufacturers are quoting on the basis of $1.90, Pittsburgh, equivalent to $2.05, Chicago. Official quotations, which are being firmly maintained, are as follows: $2 in car lots to jobbers and $2.05 in car lots to retailers, with an advance of 5 cents for less than car lots from mills.

Pittsburgh.—The advance of 5 cents per keg in prices of Wire Nails, which went into effect on September 20, referred to in this report last week, is, we are advised, being firmly held, not only by the larger interests, but by the independent mills as well. Present conditions in the Wire Nail trade show very strongly that there are no good reasons for any cutting in prices. Demand is beyond the capacity of the mills to fill promptly, specifications are being received in heavy volume, while Steel continues scarce and is selling at high prices. These conditions should be conducive to a well maintained market, and it seems certain that present official prices will be sustained. The mills have an enormous tonnage on their books and are behind in deliveries, in spite of the fact that shipments for some time past have been enormously heavy. Prices, which are now being firmly maintained, are as follows: Wire Nails, $1.85 in carloads to the large jobbing trade, and $1.90 in carloads to retail merchants, f.o.b. Pittsburgh, plus actual freight to point of delivery, terms 60 days, less 2 per cent. off for cash in 10 days. The above prices are now absolute minimum of the market.

Cut Nails.—The difficulty of getting prompt shipments from the mills continues to be a prominent feature in the situation. There is both a shortage in Steel and a somewhat larger demand for Cut Nails. The number of mills engaged in making Cut Nails has gradually become less within the past few years, and those which continue in operation have been keeping their production well within the bounds of actual demand. Quotations are as follows, f.o.b. Pittsburgh: Carload lots, to jobbers, $1.90; less than carloads, to jobbers, $1.95; less than carloads, to retailers, $2.05. Iron Cut Nails at points west of Buffalo and Pittsburgh are held at 5 and 10 cents advance on Steel Cut Nails.

New York.—Stocks in the hands of local jobbers are very much broken in assortment, as the result of inability to get shipments from mills. The scarcity of raw material is said to be the cause of manufacturers being so far behind in shipping orders. Quotations on small lots at store are on the basis of $2.05 to $2.15 per keg, according to seller.

Chicago.—Stocks are at very low ebb, owing to the slow receipt of cars because of car shortage, and the scarcity of Steel is also greatly delaying shipments. The advance on Cut Nails made by the mills last week was wholly anticipated by the trade and had been looked for for some time. Quotations prevail as follows: Steel Cut Nails, in car lots, $1.95 to $2; less than car lots, $2.05; Iron Cut Nails, $2.05 to $2.10, in car lots; less than car lots, $2.15.

Pittsburgh.—As anticipated, prices on Cut Nails were advanced at a meeting of the Eastern Cut Nail Association, held in New York City last week. This advance has been foreshadowed in this report for several weeks past and is due to the heavy demand, the large tonnage on the books of the mills and the scarcity and high prices of Steel. The output is still being restricted by the shortage in Steel and the Cut Nail mills are somewhat behind in deliveries. Official prices, as adopted last week, are as follows, f.o.b. Pittsburgh: Carload lots, to jobbers, $1.90; less than carloads, to jobbers, $1.95; less than carloads, to retailers, $2.05. Iron Cut Nails at points west of Buffalo and Pittsburgh are held at 5 and 10 cents advance on Steel Cut Nails.

Barb Wire.—New business is comparatively light, but specifications on contract orders are heavy and mills are somewhat behind on orders. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Gal.
Jobbers, carload lots	$2.00	$2.30
Retailers, carload lots	2.05	2.35
Retailers, less than carload lots	2.15	2.45

Chicago.—While the new tonnage that is now being received by the makers is comparatively light, specifications on contracts placed during the past few months are very heavy, and the mills, with practically no stocks on their hands, are in no position to make shipment in less than two to three weeks. Prices, which are firmly maintained, are as follows: To jobbers, Chicago, car lots, Painted, $2.15; Galvanized, $2.45; to retailers, car lots, Painted, $2.20; Galvanized, $2.50; retailers, less than car lots, Painted, $2.30; Galvanized, $2.60; Staples, Bright, in car lots, $2.10; Galvanized, $2.40; car lots to retailers, 10 cents extra, with an additional 5 cents for less than car lots.

Pittsburgh.—Demand continues quite heavy, and all indications are that fall consumption will be very large. The mills are behind in deliveries, and output is still restricted to some extent on account of shortage in supply of Steel. Specifications on contracts are being received very freely by the mills. Official prices, effective from September 20, and which we are advised are being firmly maintained are as follows: Painted Barb Wire, $2, and Galvanized, $2.30, in carload lots to the large jobbing trade, with the usual advance of $1 a ton to retailers in carload lots, f.o.b. Pittsburgh, 60 days, or 2 per cent. off for cash in 10 days.

Smooth Fence Wire.—Orders now being received by the mills, together with specifications on contracts, aggregate a large tonnage, and mills are somewhat behind deliveries. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads	$1.70
Retailers, carloads	1.75

The foregoing prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follow:

	6 to 9	10	11	12&12½	13	14	15	16
Annealed	Base.	$0.05	.10	.15	.25	.35	.45	.55
Galvanized	$0.30	.35	.40	.45	.55	.65	1.05	1.15

Chicago.—On practically all grades of Smooth Wire deliveries are deferred from two to four weeks. New tonnage, however, is comparatively light, as the heavy buying was done during the past 30 days, when consumers placed contracts running through the remainder of the year and in some instances through the first half of next year. Quotations are firmly maintained, as follows: Jobbers, $1.85, f.o.b. Chicago, in car lots; retailers, $1.90.

Pittsburgh.—New demand continues active, but many large consumers placed contracts prior to the advance in prices which went into effect September 20. Specifications on these contracts are being received by the mills in large volume and shipments are heavy. We are advised that official prices are being firmly maintained. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads	$1.70
Retailers, carloads	1.75

The above prices are for base numbers, 6 to 9.

Vitrified Sewer Pipe.—The market on Vitrified Sewer Pipe is about in the same condition as during the period immediately succeeding the disruption of the pool, in so far as prices are concerned. Manufacturers outside the American Sewer Pipe Company are actively seeking business, and the American Company is meeting prices where it comes in competition with the independent concerns. The regular discounts of the American Company for the Eastern District, which includes the States of New York and New Jersey, for 2 to 24 in. Standard Pipe and Fittings, f.o.b. factory, are as follows:

First class	85 %
Second class	90 %

Delivered prices are usually quoted, as purchasers want to know what Pipe will cost them at destination. Parties in the trade regard the above prices as being low as Pipe can be sold and leave a reasonable profit for the manufacturer. It is considered possible that the various manufacturers will find some way to get together again so that somewhere near former prices can be maintained, as they will tire of selling Pipe at present quotations, especially as the demand is good and the higher figures could be secured if all Eastern makers were working in harmony.

Potato Hooks.—The American Fork & Hoe Company, Cleveland, Ohio, is using last year's catalogue and list prices, the only change, we believe, being in the list prices of Potato Hooks, the revised list of which is given below. It will be observed that in the changes made there is a reduction in the number of patterns rather than in price:

No.	Per doz.	Tines.	Description.	Handle. Feet.
4GNR	$13.00	4 Rd. or Ov.	Goose Neck.	4⅛
4BHR	13.00	4 Rd. or Ov.	Bent Head.	4⅛
4GNFL	14.50	4 Lt. Flat.	Goose Neck.	4⅛
4BHFL	14.50	4 Lt. Flat.	Bent Head.	4⅛
4BHFM	16.00	4 Med. Flat.	Bent Head.	4⅛
4GND	16.00	4 Diamond Bk.	Goose Neck.	4⅛
4BHD	16.00	4 Diamond Bk.	Bent Head.	4⅛
4SNW	20.00	4 Diamond Face.	Swan Neck, Wash. Co.	4⅛
4BOL	13.00	4 Lt. Bd. Ov.	Bent Head.	4⅛
4BOM	16.00	4 Med. Bd. Ov.	Bent Head.	5
4BOH	17.50	4 Hy. Bd. Ov.	Bent Head.	5
5GNR	17.50	5 Rd. or Ov.	Goose Neck.	4⅛
5BHR	17.50	5 Rd. or Ov.	Bent Head.	4⅛
5SNR	19.00	5 Rd. or Ov.	Swan Neck.	4⅛
5BOL	17.50	5 Lt. Bd. Ov.	Bent Head.	5
5BOH	21.00	5 Hy. Bd. Ov.	Bent Head.	5
5CP	20.00	5 Rd. or Ov.	Bent Head, Cal. Pat	5
6GNR	19.00	6 Rd. or Ov.	Goose Neck.	4⅛
6SNR	20.50	6 Rd. or Ov.	Swan Neck.	4⅛
6BHR	19.00	6 Rd. or Ov.	Bent Head.	4⅛
6BOL	19.00	6 Lt. Bd. Ov.	Bent Head.	5
6BOH	24.50	6 Hy. Bd. Ov.	Bent Head.	5

For longer handles add $1 per dozen list for each 6 in. added.
For riveting or nailing shanks, add 20 cents net per dozen.
Unless otherwise specified, Hooks will always be sent without riveting or nailing. Be sure to state in ordering if riveting or nailing is desired.

Axes.—Activity has been the noticeable characteristic of the Axe market of 1906, manufacturers almost unanimously reporting that they could have sold many more goods than they were able to produce. Purchases have been considerably larger than for several years, all classes of buyers being attracted by the low prices established immediately after the dissolution of the pool in the early spring. The amount of business to be placed was exceptional for the reason that during the preceding period of high prices stocks, especially of jobbers, had been cut down to the minimum in anticipation of the break that was universally expected sooner or later. Indeed, the opinion is expressed that if the present extraordinary demand continues for another year it will only make up for what was lost in volume of trade during the era of high prices. To manufacturers, however, the season has been an unsatisfactory one, for the reason that while they could undoubtedly sell Axes to-day at remunerative figures few of them are in a position to accept new business, having booked all they can make this year at the low prices prevailing early in the season. Specifications on contracts are heavy and are being placed well in advance of requirements to insure delivery when wanted.

Conductor Pipe and Eaves Trough.—A conference of manufacturers of Conductor Pipe and Eaves Trough was held last week in Cincinnati, but no resulting change in prices or market conditions has yet been announced. It is generally believed, however, that on Copper lines an advance will be necessitated by the recent upward movement of Sheet Copper. On Galvanized Pipe and Trough less is heard of irregularities in the West, and it is hoped that the higher costs of raw material will correct the tendencies arising from competition.

Bright Wire Goods.—A further advance in Bright Wire Goods, which have already moved upward several times during the year, has just been announced. The advance is a considerable one, and if a proportional change is made by the jobbing trade the discount to average retail trade would be 90 and 10 per cent. It is to be doubted, however, if the market will reach so high a level for the present, as jobbers undoubtedly have fair stocks purchased at much better prices than are now quoted.

Sledges.—Leading manufacturers of Sledges and Cast Steel Wedges have advanced their quotations 7½ per cent. The higher prices are said to be necessitated by the present cost of raw material.

Shovels.—From reports received regarding independent Shovel manufacturers, it would seem that the majority of them have followed or will follow the lead of the Ames Shovel & Tool Company, at least so far as fourth grade goods are concerned, advancing their quotations 5 per cent., or about 20 or 25 cents per dozen. It is asserted that ample justification for this and even for a greater advance is to be found in the present prices of sheet metal and especially of handles. At the same time some makers are still adhering to their old quotations and state that they see no reason for a change in the price of their goods, at least for the present.

Wood Chair Seats.—Reference was made in our market reports of last week to the recent advance in the price of perforated Wood Chair Seats, which are being handled to a considerable extent by Hardware merchants, especially in the West. We have since been advised by some manufacturers that they are offering a somewhat better price than was quoted on open lots, their discount on less than carloads being 60 and 10 per cent.

Tin and Galvanized Ware.—A further advance in Tinware, referred to as a probability in our previous market report, was announced the latter part of last week. Quotations of leading manufacturers are about 5 per cent. higher, and certain lines of Galvanized Ware, including Coal Hods as well as the general line of Tinware, are affected by the change. Jobbers, many of whom have large stocks purchased prior to the recent advances, are now selling in many cases at figures closely approximating the present extreme quotations of manufacturers.

Cotton Rope.—There is a scarcity of available Cotton Rope reported, as manufacturers have contracted for their output for the next nine months or so and will not accept orders for delivery before next July. It is customary for manufacturers to contract for their output about July 1 for the ensuing year, so that those who have not already provided for their requirements will have to depend upon jobbers for their supplies. If the price of cotton should fluctuate during the coming nine months it would make no difference in the cost of Rope to jobbers who placed contracts for the year, although in case of advance or decline they might, of course, change their selling prices. The Hardware grades of Cotton Rope are largely made from imperfect cotton yarn, which, while it does not injure the Rope and is not perceptible, is not marketable for other purposes. Hardware Rope made of perfect yarn is held by manufacturers at about 7

cents advance on the price of the ordinary grades. The manufacturers of Cotton Rope do not regard it as a profitable part of the business. The following are current quotations to the retail trade in ordinary small lots:

Best, ¼ in. and larger.....16½ to 18c.
Medium, ¼ in. and larger.....15½ to 16c.
Common, ¼ in. and larger..... 10c.
In coils, ½c. per lb. advance.

Spool Wire.—The strength of the market for Wire products is evidenced by higher quotations on various special lines. In this connection it is noted that manufacturers of Spool Wire have recently made a moderate advance in prices.

Soldering Coppers.—A further advance of 1 cent per pound in Soldering Coppers was made last Friday, bringing the price on 300-lb. lots up to 24 cents per pound. A corresponding change in Copper Wire was also announced.

Sieves, Coal, Flour and Meal.—Prices on Coal, Flour and Meal Sieves are somewhat higher, some manufacturers having advanced their quotations 5 cents per dozen.

Twine, &c.—It is anticipated that Jute, Flax and Hemp Twines will be difficult to obtain, and a prominent cordage jobbing concern in New York has advised customers to cover their anticipated requirements for the remainder of the year at once. Manufacturers have held off buying raw material as long as possible, thinking the high prices would not hold. Many jobbers have been purchasing in hand to mouth quantities because of the high prices for the finished products, so that available stocks are generally light. Manufacturers recently established a differential of 3 cents instead of 2 cents between Nos. 12 and 18 Flax Twine. Quotations on India Hemp, Jute and Wool Twines are higher. The following figures may be taken as fairly representing the market to the retail trade:

Flax Twine.
No. 9, ¼ and ½ lb. Balls.....22 to 24c.
No. 12, ¼ and ½ lb. Balls.....19 to 21c.
No. 18, ¼ and ½ lb. Balls.....16 to 18c.
No. 24, ¼ and ½ lb. Balls.....16 to 18c.
No. 36, ¼ and ½ lb. Balls.....15 to 17c.
Chalk Line, Cotton, ½ lb. Balls.....25 to 30c.
Cotton Mops, 6, 9, 12 and 15 lb. to doz.....10 to 18c.
Cotton Wrapping, 5 Balls to lb., according to quality.14½ to 20c.
American 2-ply Hemp, ¼ and ½ lb. Balls.....13 to 14c.
American 3-ply Hemp, 1-lb. Balls.....13 to 14c.
India 2-ply Hemp, ¼ and ½ lb. Balls (Spring Twine)...9 to 10c.
India 3-ply Hemp, 1-lb. Balls.....9 to 10c.
India 3-ply Hemp, 1½ lb. Balls.....8½ to 9½c.
2, 3, 4 and 5 ply Jute, ½-lb. Balls.....10½ to 12c.
Mason Line, Linen, ½ lb. Balls.....46c.
No. 264 Mattress, ¼ and ½ lb. Balls.....37c.
Wool, 3 to 6 ply.....B 7½c.; A 8½c.

The price of India Hemp Braided Sash Cord has been advanced to from 18 to 18½ cents per pound, according to quantity. Manufacturers of other kinds of Sash Cord reaffirmed former prices at a meeting a short time since, as already noted in these columns, and the market is regarded as firm.

Rope.—Business is good and prices quite well maintained. The outlook for an excellent fall trade is considered favorable. Some manufacturers' representatives are seriously considering discontinuance of the sale of Mixed Manila Rope of sizes used for suspending painters' platforms, hoisting safes and other uses of like nature. The sale of inferior quality Rope for purposes where life and limb may be endangered is regarded by them as criminal and as likely to result in lawsuits. New York quotations on Rope are as follows: Pure Manila, 12¼ to 12½ cents; B quality, 11½ cents; Pure Sisal, 9 cents; No. 2 quality, 7½ to 7¾ cents; No. 1 Jute, ¼ in. and up, 8 to 8½ cents; No. 2 Jute, ¼ in. and up, 7 to 7½ cents per pound.

Window Glass.—A movement is on foot looking to the formation of a selling agency to dispose of the product of the hand-operated factories, owing to the serious outlook regarding the possible loss of profits by the entire industry during the coming fire. It is reported that operating factories are now selling Glass at about 90 and 10 per cent. for single and 90 and 20 per cent. discount for double strength. In some instances it is said that 2½ per cent. additional discount on both single and double strength is given, with 2 per cent. for cash in 10 days. These prices are considered as being near the danger line when the high cost of labor is considered. At a meeting held last week representatives of more than 1300 hand-operated pots are said to have indorsed the agency plan, and that it had the approval of the American Window Glass Company. Another meeting of manufacturers to complete arrangements is scheduled for this week. It is considered probable that the plans will include pooling all the Glass carried over from last season as well as that which has been manufactured during the present fire. This Glass is to be sold on the agency plan and all manufacturers in the agreement are to participate in the profits whether they have stock on hand or not. This provision is supposed to have been made to repay those who agree to keep their factories closed until a general starting date is decided upon. It is estimated that the plants which will be in operation by the end of the present week will exceed 700 pots. Jobbers' quotations, from jobbers' list, October 1, 1903, are as follows: Greater New York, single, 90 and 5; double, 90 and 10 per cent. discount. Eastern District except the Boston District, 90 and 10 per cent. discount for all sizes of single and double strength. In the Boston District quotations are reported as being 90 and 15 for all sizes of single and double strength.

White Lead in Oil.—Orders in fair volume are being booked with the manufacturers for immediate and nearby delivery, and specifications on contracts are also in good volume. Prices continue strong, owing to the firmness and upward tendency of Pig Lead. A leading manufacturer states that Lead products have never been sold at so close a margin of profit by his concern as at present, but that advances in price were not conducive to business. Orders for Lead in Oil for delivery during the rest of 1906 have been booked on the basis of 7¼ cents and upward, according to terms of sale, less the usual rebate of ¼ cent on lots of 12 tons and over, and 2 per cent. for cash if paid within 15 days from date of invoice. Quotations are as follows: In lots of 500 lb. or over, 7¼ cents; lots less than 500 lb., 7¾ cents per lb.

Linseed Oil.—Flax Seed has receded and advanced in price during the week under review, the fluctuations being so erratic as to prevent any reasonable idea of what the future of the market will be. Just at present the Oil market is somewhat stronger, because of advanced values of seed. Crushers are of the opinion that the seed market does not justify lower prices on Oil, either for prompt or future deliveries. Demand is still confined to covering immediate requirements, which is reducing stocks to some extent. New York quotations are as follows, according to quality and seller: City Raw, 37 to 38 cents per gallon. Out of town Raw, 36 to 38 cents per gallon. Boiled Oil is 1 to 2 cents per gallon over Raw.

Spirits Turpentine.—The tone of the local market is strong, upon reports of destruction of stock by recent storms in the South. The demand is fair at this point. Prices have advanced about 1½ cents per gallon. New York quotations are as follows, according to quantity: Oil Barrels, 65 to 65½ cents; Machine Made Barrels, 65½ to 66 cents per gallon.

OUR attention has been called to the operations of an impostor who has recently been trying to obtain loans from the trade on the plea that he is the "confidential agent" of the Odell Hardware Company, Greensboro, N. C. He is supposed to be the same individual who was apprehended in Philadelphia some months since but failed to land in jail because no one would take the trouble to make out a case against him. If, however, he happens to be arrested again it is understood that the Philadelphia representative of a manufacturing company who was a late victim of his wiles stands ready to prosecute him.

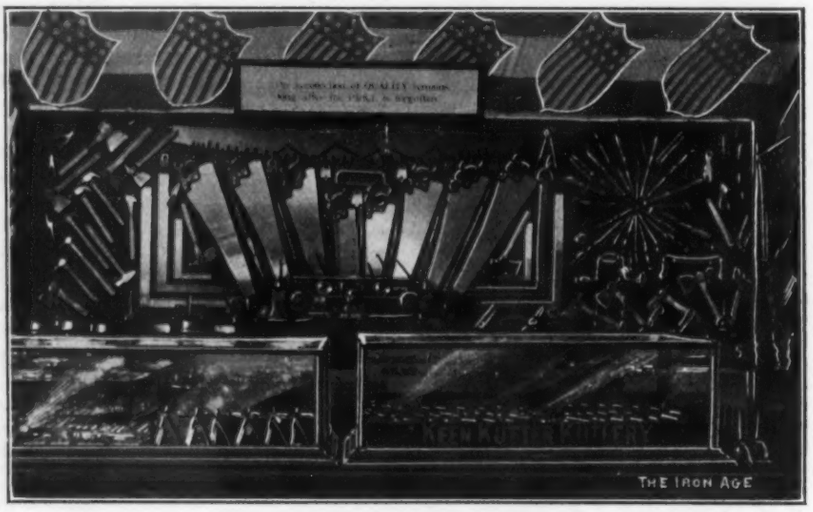
THE third annual meeting of the Inland Empire Implement and Hardware Association will be held in Spokane, Wash., January 16 and 17, 1907, at the Hotel Spokane.

DEATH OF ALBERT SWAN.

ALBERT SWAN, son of James Swan, founder of the James Swan Company, Seymour, Conn., died in that town September 21, aged 32 years. He had been ill for a long time, but his death was unexpected. Mr. Swan was born in Seymour, August 1, 1874. After graduating from the Seymour High School he entered the business which his father had established, the James Swan Mfg. Company, Incorporated, and was a director and assistant secretary of the corporation. He was a Mason and a Knight Templar, an Odd Fellow and a member of the Knights of Pythias. He was a member and the clerk of the Seymour Congregational Church. Besides his father and mother he leaves two brothers, William E. and John Swan, and a sister. Mr. Swan is the third director of the company to die within a short time, the others being George Laighton of New York, the former president of the Russell & Erwin Mfg. Company, and Chief Justice David Torrance of Derby, who was secretary of the corporation.

DISPLAY BOARD IN THE STORE.

DURING the recent Farmers' Fair, held at Orleans, Ind., Johnson & Frost, Hardware, Implement and Stove merchants of that city, attracted considerable attention by their store displays. One of these displays, a clever showing of carpenters' Tools, is illustrated herewith. The board used, covered with black calico, is 4 ft. high and 12 ft. long, and is placed against the wall, a section of shelving having been removed for this purpose. Articles are fastened to the background with Brass Tacks and Screws and hung with Brass Cup Hooks, permitting the removing and replacing of any article immediately. The exhibit consisted solely of Keen Kutter brand of goods of the Simmons Hardware Company, St. Louis, Mo. Directly in front were show cases on a counter, containing a line of Keen Kutter Cutlery, Shears, Silverware, &c. Displays of this sort are arranged every two weeks. Their attractiveness has been a very successful drawing card, as the exhibit can be seen from the street, and the sales of the firm on the articles thus displayed have very materially increased during the six weeks the display board has been in use, and in fact have outdone anything before attempted. The display illustrated was arranged by Thomas L. Reed, one of the clerks in the store. The interior of the store, which is 25 x 160 ft., has been remodeled and artistically arranged throughout, contributing to the attractiveness of the displays.



Display Board in the Store.

THE E. A. PFLUEGER COMPANY.

THE E. A. PFLUEGER COMPANY, Akron, Ohio, has lately been incorporated for the purpose of manufacturing Fishing Tackle. The company has a capital of $100,000, fully subscribed, the incorporators being E. A. Pflueger, C. I. Bruner, Geo. D. Bates, W. E. Slabaugh, and Francis Sieberling. E. A. Pflueger, who for many years has been associated with the Enterprise Mfg. Company, maker of Fishing Tackle, at Akron, will be president and general manager of the new company. Operations will proceed as soon as a factory can be secured, but if none of the plants about the city is suitable a new plant will be erected, and equipped with the latest machinery for the manufacture of this line.

THE North Dakota Retail Hardware Association will hold its next annual convention on February 5, 6 and 7, 1907. Minot will be the meeting place.

TRADE ITEMS.

JAMES CHESTERMAN & Co., LIMITED, Sheffield, England, have appointed Wiebusch & Hilger, Limited, 9-15 Murray street, New York, their sole United States agents. A liberal and well assorted stock will be carried at the New York headquarters of such patterns and sizes of Tapes and Rules as the trade demands. The agency arrangement is designed as a means of better serving merchants who handle Chesterman goods.

R. T. GOODE, manufacturers' agent, Chicago, has recently added to his selling accounts Light Steel Rails, Cast Hollow Ware manufactured by the Sidney Hollow Ware Company, Sidney, Ohio, and Galvanized Oil Tanks.

THE printed programme for the twelfth annual convention of the National Hardware Association at Atlantic City, October 17-19, is about to be issued. The first session of the convention will be an open one and will be participated in by manufacturers and other visitors. The other sessions will be of an executive character, with the exception of one on the afternoon of the 18th inst., when the manufacturers will again be present, on invitation, to discuss matters of mutual interest. The indications point to an attendance of 70 per cent. of the members of the association. At the banquet on Friday evening, 19th inst., Hon. John E. Watson, member of Congress from Indiana; F. S. Kretsinger, president of the American Hardware Manufacturers' Association, and Hon. R. O. Moon, member of Congress from Pennsylvania, will be among the speakers.

REQUESTS FOR CATALOGUES, &c.

REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses, with whom manufacturers may desire to communicate:

FROM JOHNSON & BOOTHE, who have purchased the Hardware, Stove, Paint and Implement business of E. Van Engen, Adams, Neb.

FROM AUGUSTA HARDWARE COMPANY, Augusta, Ga., which has been incorporated by J. M. Anderson, M. B. Hatcher and E. M. Fuller to take over the interests of Hatcher Bros., Deveny, Hood & Co. and Day & Tannahill Company.

FROM CLOSE & KENNEDY, Homestead, Okla., who have succeeded Philpott & Close in the Hardware, Implement and Sporting Goods business.

FROM FASTENOW & PLAGMAN, who have succeeded Fred. Plagman in the Hardware and Furniture business at Peterson, Iowa.

FROM LUNDY HARDWARE COMPANY, Rockport, Ill., which has been incorporated with a capital of $2500 by F. A. Lundy, Agnes Callahan and E. M. St. John.

FACTORY COST AND BUSINESS METHODS.

LABOR SAVING PERPETUAL PAYROLL.

BY HERBERT FOSTER, NEW HAVEN, CONN.

NEARLY all paymasters have experienced the enormous amount of labor involved at least six, and more often twelve, times each year in writing or printing the names of operatives upon the payroll of a large establishment. Auditors and systematizers have realized this great waste of time, and many attempts at improvement have been made with the end in view of lessening or eliminating the same. In presenting to the readers of *The Iron Age* the description of the perpetual or continuous payroll which this article illustrates, the writer may state that it is done after two years' continuous use; its practical value is therefore established and the saving in time and labor not theoretical merely, but by constant use during the time mentioned proved to be actual.

Fig. 1 illustrates an opened volume of the payroll, which consists of a "Rotamatic" binder with detachable leaves. The perpetual or continuous part consists of the binder itself, and the large leaves to which are attached the tablets containing the name slips of the operatives. The narrower leaves which have the weekly columns for

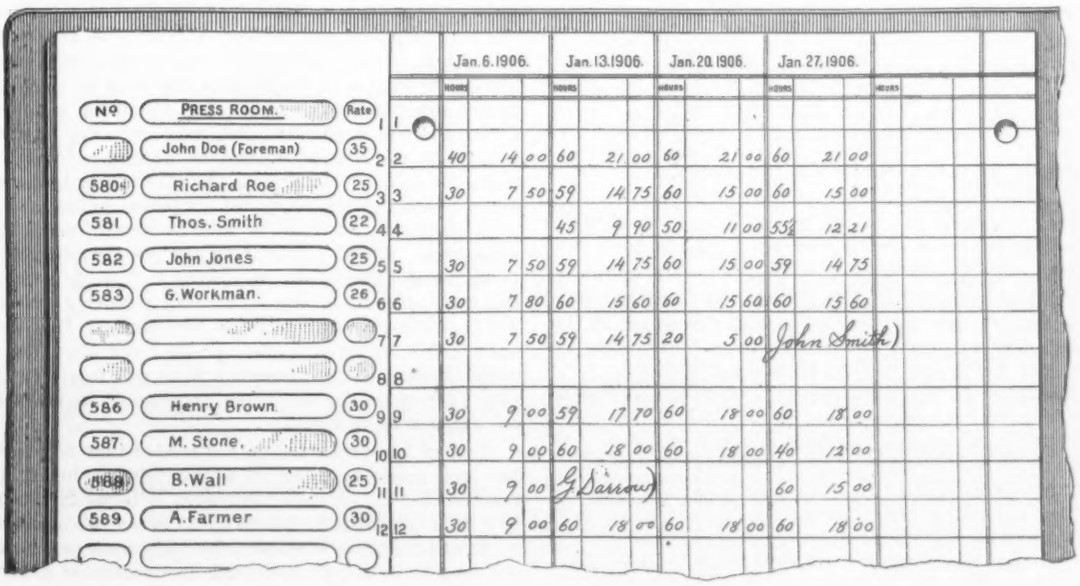


Fig. 1.—Portion of Perpetual Pay Roll.

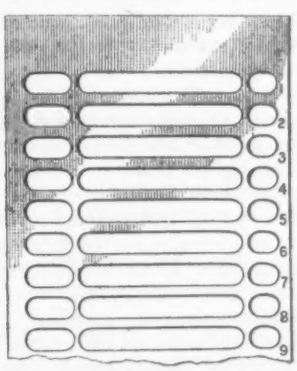


Fig. 2.—Tablet for Holding Name Slips, Front Section.

amounts paid are the ones to be transferred, all of which in turn will be described. First, the large leaf. This in size is 13¼ x 15¾ in., and may be made of either a good quality of moderately stiffened linen reinforced upon the binding edge or of stiff, vulcanized fiber paper board.

To this leaf is attached the tablet for holding the name slips, which is made in the following manner: The outside or front piece, Fig. 2, should be 4⅞ in. wide by 15¾ in. long. To make this piece a punch and die is required to blank out the numbered spaces shown, which are 9-32 in. in width, leaving 7-32 in. of material between the spaces. The middle piece of the tablet, Fig. 3, will have to be made 5 in. wide x 15¾ in. long, and for this a punch and die made which will blank out a square cornered oblong piece, as shown in the illustration, 13-32 in. in width, leaving 3-32 in. of material between the spaces. If it is desired, a back piece may be made, in which case the dimensions must be similar to the front piece, 4⅞ x 15¾ in. If the leaf upon which the tablet is fastened is to be made of linen or canvas, a back piece will be found preferable; if made of the stiff fiber board it is not so essential.

After being punched it is necessary to fasten the pieces together by means of glue or cement, according to the

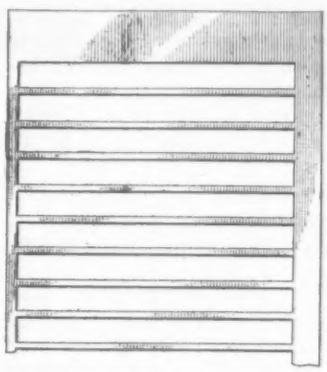


Fig. 3.—Tablet for Holding Name Slips, Middle Section.

material of which the tablet is made. A tablet cemented together is shown in Fig. 4. It will be observed that the middle piece projects a little to the right of the others. The cut shows this projection partially severed. The object of this is to give strength to the middle piece and hold the small cross pieces in position until the pieces are united, when the portion which projects may be cut off. When this is done the tablet is finished and the receptacles are ready to receive the insertion of the name slips.

As to material from which these tablets are made. Those at present in use are made of celluloid. While this completed article has a very fine finish and looks well, celluloid is not the easiest material to work with, and is not recommended for this purpose. Cardboard of

good quality and thickness, vulcanized fiber paper or leather covered linen for front and back, with fiber paper or cardboard for the middle piece, would be found well adapted to the purpose. When the tablets are completed they must be attached to the left hand edge of the large leaf by means of glue or cement, according to the material used.

For the name slips it has been found most convenient

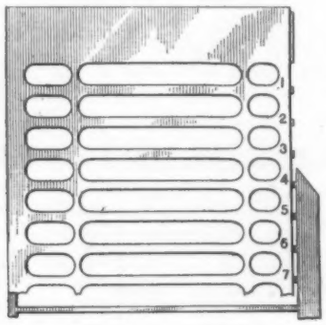


Fig. 4.—Tablet for Holding Name Slips, Front and Middle Sections Joined.

to have pieces of good quality thin bristol board, or very heavy ledger paper, ruled to align with the spaces in the tablets. For the sizes described, pieces 5¼ in. wide by 15 in. long have been ruled, as illustrated in Fig. 5.

The object in having these rulings is in order that

No	PRESS ROOM	Rate
	John Doe (Foreman)	35
580	Richard Roe	25

Fig. 5.—Blank for Writing Up Name Slips.

the card or paper may be inserted in the typewriter, the writing to be done between the horizontal lines, while the vertical lines show where the operative's number, name and rate, respectively, must appear. They are then cut either with a pair of scissors or a small photo paper cutter, the latter being preferable, as the gauge may once

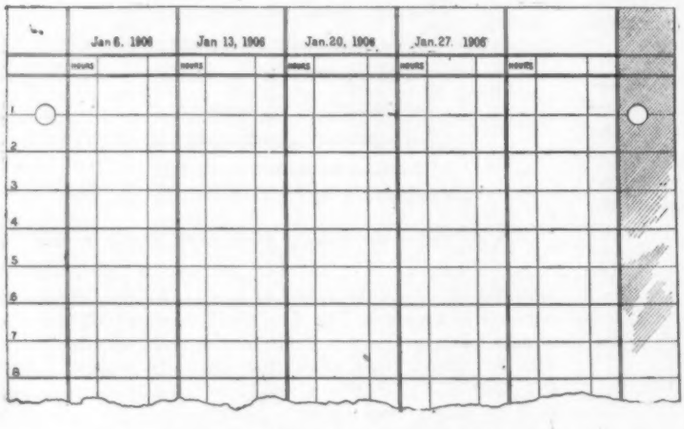


Fig. 6.—Record Sheet Fitting on Tablet Containing Names.

be set the proper distance and need not be changed. The horizontal lines give the width the slips are to be cut. They can then be inserted readily into the proper receptacles for them in the tablets.

The narrow leaf shown in Fig. 6 is a reproduction of the sheet included in Fig. 1 before it is put into use. These leaves must be made wide enough to accommodate five ruled columns for amounts paid, so as to provide for those months during the year when there are five pay days in the month. The one illustrated is 9 in. wide by 15¾ in. long. Both right and left edges have binding holes punched in them, aand these edges are reinforced so that the reinforcement comes on the upper side of the right hand edge, and on the under side of the left hand edge; when the leaf is reversed the reinforced edges appear just the same. The reason for this is that it is easier to make entries when all are nearest the names, and the narrow leaves have columns for the weeks of two consecutive months on either side. Thus, January being uppermost, the reverse of this leaf has the February columns. When it is desired to make use of the February columns the leaf is taken out, reversed and reinserted, and the entries are then conveniently made on the left hand side of the volume, the same as in January, thus obviating the necessity for following a line first across the left hand page, and then on to the right hand page until the desired column is reached, and also lessening the chances for errors. As this has to be done but once a month (there being but six leaves to the year) the very short time it takes to do it is amply repaid in the advantages gained. It will be noticed that the lines of these narrow leaves are numbered 1, 2, 3, 4, 5, &c.; the spaces of the name slip tablet are similarly numbered. This is done for convenience in following the line and for quick reference to amounts. If the faint cross lines are ruled alternately faint blue and faint red, it will be found very convenient for the same purpose. The sheet filled out appears as in Fig. 1.

It may have occurred to the reader that no provision has been made to cover an operative's leaving or being assigned a new number. Provision is made in this manner: Should John Smith (Fig. 1) sever his connection, when last payment is made to him his name is written in the amount column against this payment; his name slip is then removed from the tablet and destroyed. When this operative's check number is reassigned, a new name slip is made out bearing the name of the new holder of the number and inserted in its proper place. It is understood by all concerned that from the time of the last payment to the former holder of the number indicated by his name being written against this payment, the payments from then on upon the line against this number are made to the new holder thereof, and so continue until he changes or retires, when the same thing is again done (See also G. Darrow, Fig. 1.)

After entries for the last payment in December are made, the narrow leaves are ready to be transferred to the yearly transfer binder. The binder for this purpose may be as cheap as desired, for it will probably be seldom referred to, and is kept only in case of necessity for such reference. A name sheet, 13¼ x 15¾ in., same size as the large permanent leaf, is provided for this purpose, the cross ruling and numbering of which must register and correspond to that of the narrow leaves.

The only writing of the whole year now has to be done, and that consists in copying the number and name of each operative as they appear in the name spaces for the last payment in December to the corresponding line of the transfer page.

The advantages of this payroll must be appreciated by all who understand this somewhat faulty description. The paymaster at present using it certainly appreciates its labor and time saving qualities, and the possibility of always keeping the numbers and names in their proper positions no matter how often they may be changed. As to expense, it may readily be seen that the initial expense incurred in providing the dies, binders, &c., is the greatest. After the first year the only expense is the new set of printed leaves for the year and the cheap transfer binder for use at the close of the year.

Letters from the Trade.

Our readers are invited to discuss in these columns questions of trade interest connected with the manufacture or sale of Hardware. We shall be pleased to have a free expression of opinion on subjects deserving the attention of Hardware merchants and manufacturers.

Percentage of Profit.

FROM A FOUNDRY COMPANY IN PENNSYLVANIA: Relative to the method of computing percentage of profit: This question was recently put to eight accountants, seven of whom claimed the correct and proper way was to base profit on cost. To compute profit on selling price is looking backward—putting the cart before the horse.

The merchant buys an article—his investment; he adds freight, interest, losses, &c., then determines the percentage of profit he wants to make.

The manufacturer buys raw material, adds labor, supplies, depreciation on machinery, burden, overhead, &c., then adds his percentage of profit to determine the selling price.

It is true merchants have to buy at a certain price in order to compete with another selling price, but in that event their gain (if any) is a proportion of the selling price.

Again, the cost being the merchant's investment (which it certainly is), and he finds at the close of the year that he has made 20 per cent., is this 20 per cent. of the sales or of the cost (investment)?

Let $100 be invested till it doubles itself. Has the profit been 50 per cent. or 100 per cent.? Emphatically 100 per cent. The proportion of gain to revenue is 50 per cent. BOOKKEEPER.

Circulars and "Follow Up" Letters.

FROM A CONNECTICUT MANUFACTURER: We wish most emphatically to express our approval of the remarks made by "New England," on page 771 of your issue of September 20. The amount of literature which burdens our mail every day for goods which we buy only occasionally and in very small quantities is beyond belief. We feel sometimes that if the agent for these articles should come into our office we would have difficulty in giving him courteous attention. We believe that there is a limit to the "follow-up" system, which should be guided by common sense and a consideration for the prospective customer. MIDDLESEX.

FROM A WESTERN MANUFACTURER: Referring to the letter from your correspondent, "New England," in *The Iron Age*, September 20, will say that we think he takes a wrong stand in regard to "follow up" letters pertaining to articles for sale in his line. It may be true that jobbers or retailers receive vast quantities of circular matter for which they have no apparent use, but it often occurs that an inquiry will arise for an article with which the jobber or retailer has become familiar by this very process of circularizing and card index letter writing, but he is at a loss to recall the name of the manufacturer.

We do not believe in the impertinent style of letter mentioned, but we have frequently received responses from "follow up" letters in which prospective customers tender their thanks for again calling attention to a specialty which at the time the former letter was written was of no interest to them, but for which they had since received inquiries.

We have also had letters from prospective customers requesting that we "keep it up," and that while they were not at present in the market we would probably land their order later on. We find it profitable to utilize both the circulars and "follow up" letters by alternating them—that is, we write a letter which would, perhaps, call for a reply, and afterward mail circulars at two subsequent intervals and then take the matter up by letter. This plan is of less annoyance to the customer. Personally we do not object to receiving "follow up" letters, but we want them to be genuine, as we ourselves would not insult the intelligence of the average buyer by sending him an imitation letter. We believe the communication should be a circular or pamphlet, and if any other communication is needed it should be a direct letter. We do not think it takes high priced office help to write to a manufacturer and tell him that his line is not suitable and he desires to be removed from the mailing list. MIDDLE WEST.

ENTERTAINMENT AT THE ATLANTIC CITY CONVENTIONS.

ONE of the entertainment features of the conventions of the jobbers and manufacturers at Atlantic City, October 17-19, will be the card party, which is under the charge of a committee of which Mrs. Geo. W. Trout of Chicago is the efficient leader. The card party promises to be a decided success, and the prizes donated by the manufacturers will be numerous and worth striving for. Up to date the following manufacturers have signified their intention of furnishing prizes:

American Steel & Wire Company, Chicago, Ill.
American Fork & Hoe Company, Cleveland, Ohio.
E. C. Atkins & Co., Indianapolis, Ind.
American Wringer Company, New York City.
American Sheet & Tin Plate Company, Pittsburgh, Pa.
Bissell Carpet Sweeper Company, Grand Rapids, Mich.
Bronson-Walton Company, Cleveland, Ohio.
Boss Washing Machine Company, Cincinnati, Ohio.
Belding-Hall Mfg. Company, Belding, Mich.
Bullard Automatic Wrench Company, Providence, R. I.
Challenge Cutlery Corporation, Bridgeport, Conn.
Clyde Cutlery Company, Clyde, Ohio.
Cleveland Twist Drill Company, Cleveland, Ohio.
Corbin Screw Corporation, New Britain, Conn.
Caldwell Mfg. Company, Rochester, N. Y.
Coldwell Lawn Mower Company, Newburgh, N. Y.
Henry Disston & Sons, Philadelphia, Pa.
Dana Mfg. Company, Cincinnati, Ohio.
Dover Mfg. Company, Canal Dover, Ohio.
Diamond Saw & Stamping Works, Buffalo, N. Y.
Garland Nut & Rivet Company, Pittsburgh, Pa.
Heller Bros., Newark, N. J.
Humason & Beckley Mfg. Company, New Britain, Conn.
Irwin Auger Bit Company, Wilmington, Ohio.
Landers, Frary & Clark, New Britain, Conn.
Lovell Mfg. Company, Erie, Pa.
Lufkin Rule Company, Saginaw, Mich.
Meriden Cutlery Company, Meriden, Conn.
Manning, Bowman & Co., Meriden, Conn.
David Maydole Hammer Company, Norwich, N. Y.
McCaffrey File Company, Philadelphia, Pa.
Miller Bros. Cutlery Company, Meriden, Conn.
Chas. Morrill, New York.
Mack & Co., Rochester, N. Y.
National Sweeper Company, Marion, Ind.
National Brass & Iron Works, Reading, Pa.
North Bros. Mfg. Company, Philadelphia.
Ohio Tool Company, Columbus, Ohio.
Pittsburgh Steel Company, Pittsburgh, Pa.
Pullman Mfg. Company, Rochester, N. Y.
Fayette R. Plumb, Frankford, Philadelphia, Pa.
Romer Axe Mfg. Company, Dunkirk, N. Y.
Reading Hardware Company, Reading, Pa.
S. L. & G. H. Rogers Company, Hartford, Conn.
Simonds Mfg. Company, Fitchburg, Mass.
H. D. Smith Company, Plantsville, Conn.
U. S. Stamping Company, Moundsville, W. Va.
Stanley Rule & Level Company, New Britain, Conn.
Supplee Hardware Company, Philadelphia, Pa.
Savage Arms Company, Utica, N. Y.
Wm. Vogel & Bros., Brooklyn, N. Y.
L. & I. J. White Company, Buffalo, N. Y.
Wood Shovel & Tool Company, Piqua, Ohio.

The Dover Mfg. Company will also present every lady with a Tourist Sad Iron. The Garland Nut & Rivet Company will furnish a pencil to every player. Every lady will also receive a Nail File from the McCaffrey File Company. American Sheet & Tin Plate Company will furnish the playing and score cards. Ice cream for the large assemblage will be supplied by the North Bros. Mfg. Company, while the Marlborough-Blenheim Hotel management will see that plenty of cake, punch and lemonade is circulated.

MISCELLANEOUS NOTES.

Tool Chests.

C. E. Jennings & Co., 42 Murray street, New York, are just distributing a very comprehensive illustrated catalogue of tool chests, filled with tools or empty, from the small outfits for children, priced by the dozen, to empty

chests for professionals, listed at $26 each. Complete equipments include regular chests and cabinets to hang on the wall, all the outfits containing practical working tools, the best of which are fitted with the finest high grade tools. In the assortments are electricians', carpenters', machinists' and jewelers' chests, some of which can be carried on the shoulder, or, in appearance like a dress suit case, by hand to the work.

Chicago Pitless Wagon or Stock Scales.

Chicago Scale Company, Chicago, has recently added to its line a 5-ton pitless scale with heavy channel steel frame and platform stringers. It is designed to meet the demand for a scale that can be set up quickly without any foundation or can readily be taken apart and moved from one place to another. The scale is only 8 in. from top to bottom, and can be set on top of the ground if desired. Directions are furnished with cuts, which, the maker asserts, will enable any one to set it up without difficulty.

Champion High-Low Jack.

Patterson, Gottfried & Hunter, 146-150 Centre street, New York, are offering the Champion High-Low jack, so-

Fig. 1.—Champion High-Low Jack.

called, illustrated herewith. Fig. 1 shows the jack set up with the lifting bar in place; Fig. 2 affords a sectional view of its interior. It is 11½ in. high, made throughout

Fig. 2.—Sectional View of High-Low Jack.

of malleable iron and machine steel, and is finished in aluminum. It has a raising capacity of 6 in. and, it is said, will easily lift the heaviest car. This jack is designed especially to answer the requirements of motorists when making emergency repairs along the road. It is founded on the principle of the dead center, making it possible to lift a car only a fraction of an inch and let it remain there. The ram is lifted by turning the disk, by hand when the weight is not on the ram; otherwise by a bar inserted between the lugs. The lever moves one way to raise and the opposite way to reverse; there is no reversing attachment. Simplicity is referred to as a special feature of the tool, making it especially reliable, since if the handle is lost or broken any bar or stick may be used in its place, while it is said to be impossible to break or lose any other part or get it out of order.

B. & S. Magnetic Tack Hammer.

Billings & Spencer Company, Hartford, Conn., is bringing out a new magnetic tack hammer, as shown in the accompanying illustration. The whole tool is a single

B. & S. Magnetic Tack Hammer.

drop forging and is 7¾ in. long. One end of the head is in the form of a horseshoe magnet, which automatically holds the tack in place for driving. A convenient tack puller is formed on the handle end of the tool.

Registering Saratoga Trunk Bank.

The Plaget Novelty Company, 265 Broadway, New York, has just supplemented its line of registering savings banks in various shapes, including trunk and barrel, by the addition of the Saratoga trunk bank here illustrated. One of the novel features of this bank is the pivoted door at bottom, which can only be opened after $10 in dimes has been deposited. The 10-cent coin is pushed through the slot shown, when by pulling out the end thumb piece the coin is registered, the figures on left front indicating always the exact amount in the bank, the cut showing $4.40. When $10 in dimes has

Saratoga Trunk Savings Bank, Self-Registering.

been deposited the bottom opening can be uncovered so as to remove the 100 10-cent pieces, but if so desired they may be left inside and another 100 dimes dropped in. The bank is a good reproduction of a Saratoga trunk, in cast iron, measuring 4¾ x 3½ x 2⅝ in. and weighing 2 5-16 lb., packed in neat individual cardboard boxes with instructions; three dozen are packed in a case, weighing about 110 lb. complete with case. On the reverse side are the words "Saratoga Trunk" curved with "Bank" underneath, the raised block letters making a

striking appearance. The article is nickel plated, with polished surfaces, or other finishes can be furnished if ordered in sufficient quantities.

National Inverted Gas Light and Automatic Regulator.

National Gas Light Company, Kalamazoo, Mich., manufactures the inverted gas light shown in Fig. 1. Its construction is described as simple and designed to fit

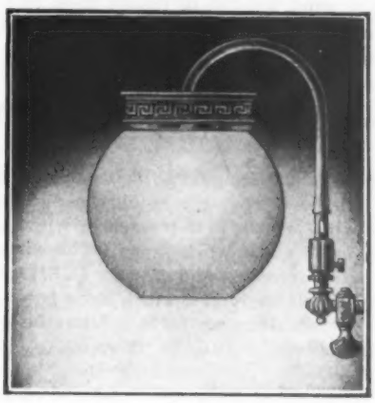


Fig. 1.—National Inverted Gas Light.

any fixture. The mantle is supported and calculated to withstand a jar or draft of air without breaking. The automatic regulating device, which is the most important feature of this light, is shown in Fig. 2. It will be seen that there is an opening, O, for gas under the piston P,

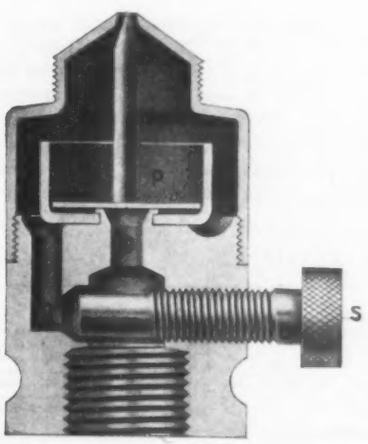
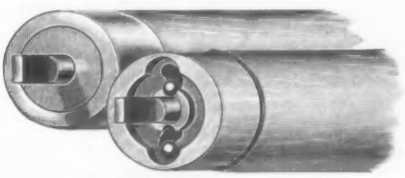


Fig. 2.—Section of the Automatic Regulator.

and also a side opening, G, that allows gas to flow around on top of the piston. The flow through this side opening can be controlled by the screw S. In operation, when this screw is adjusted to the point where just enough gas escapes to fill the mantle, giving a full light, the regulator is so constructed that if the pressure increases it forces the piston up, thus lifting the pin point at the opening. This action reduces the size of the opening, according to the increase of pressure and holds the gas emitted to a uniform amount. Comparative tests are cited by the maker, showing it to consume only 2.7 cu. ft. of gas per hour, against 6.6 cu. ft. of gas per hour by a vertical burner. The light is ornamental as well as practical, being furnished in oxidized, brushed or polished brass and fitted with a specially made frosted globe. While the consumption of gas is reduced, the value of the light is said to be enhanced by its inverted position, the light being diffused downward where it is needed instead of on the walls and ceilings.

A Ball Clutch Shade Roller.

The shade roller shown in the accompanying illustration contains a new device which distinguishes it from other rollers, consisting of a ball clutch which replaces the customary pawls. On the central spear bar is a collar having diametrically opposed notches in its circumference. Integral with the roller is a cam plate having recesses rounded at both ends and corresponding to the notches of the collar, and of the size of metal balls which run within them. As shown in the illustration, one of the balls rests in the end of the cam recess nearest the center and also in the upper notch of the collar, while the other ball is at the lower end of its cam recess and out of engagement with the collar. When the balls are in these positions the roller is stationary. To actuate it the curtain is drawn down with a slight steady pull,



A Ball Clutch Shade Roller.

which rotates the cam plate and causes the upper ball to ride upon the edge of the cam recess which lifts it out of the notch and breaks the connection between cam plate and roll on the one hand and the collar and spear bar on the other. The curtain may be moved by causing it to travel at a speed sufficiently great to throw the balls with centrifugal force to the outer ends of the cam recesses, in which position they will travel around the collar without engaging it. When the curtain is brought to the desired position and its movement stopped the upper ball will drop by gravity and when it registers with the upper notch of the collar will engage it and lock the parts together. Otherwise the roller is similar to existing types. It is manufactured by the New Haven Shade Roller Company, Post Office Box 682, New Haven, Conn.

Keyhole Saw.

Bridgeport Hardware Mfg. Company, Bridgeport, Conn., is maker of the Keyhole saw here illustrated. It has a handle made entirely of steel and said to be unbreakable, with a ball shaped end especially designed to fit the hand. The handle is blued steel or gun metal finish and combines a wrench for ¼ and ⅜ in. nuts. The

Keyhole Saw.

blade is 7 in. long, made of cast steel polished bright and declared to be first class in every respect. The special clamp attachment for holding the blade in the handle is a distinctive feature of this tool, furnishing a means of locking the blade securely or releasing and removing it instantly when desired. The saws are packed one-half dozen in a box, 24 dozen in a case.

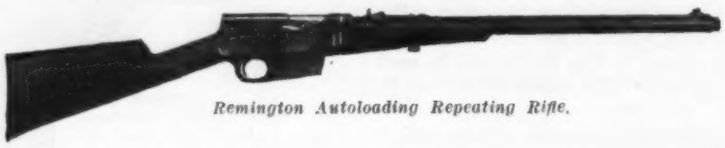
The Superior Window Clothes Drier.

C. A. Chapman, Geneva, N. Y., is offering the window clothes drier shown herewith. He also makes driers for use on balconies and verandas similar in construction, and one for use in the yard. The window drier consists of a reel hung beneath a frame, along which it can be moved inward and outward, allowing the arms to be lengthened or shortened for more or less line as desired. The arms are detachable and made in two sections connected by strong hinges, so that they may be folded, thus allowing the reel to be drawn close to the building while the inner lines are being filled. When these are filled the reel is pushed further out on the frame, arms are unfolded and more line added. When all the line is filled the reel is pushed to the extreme end of the frame, thus allowing the clothes to swing clear of the building. The line is fastened to the arms by hooks and can be easily attached or detached, while the longest sheet or tablecloth can be hung without trouble. The frame along which the reel slides is made of strong tubing. The drier is put together in parts, each part being very light, and can be put up or taken down with little effort. The construction is referred to as being so simple and at the same time so strong that it is almost impossible to get the drier out of order. It is attached to the building by four hook screws, which are inserted in the window frame, and the drier can be adjusted to fit any sized window. The device has five arms 5 ft. in length, and a capacity of 105 ft. of line, the weight being 45 lb. It is furnished complete with line. Among the advantages claimed for the drier are the following: That it saves time by avoiding the necessity of going to and from the yard; that the clothes are kept from being soiled after washing; that as the clothes are hung in a circle they dry cleaner than when on a straight line; that there is no danger of clothes being stolen, torn or whipped to pieces by the wind, twisted or frozen lines, and that it is not necessary to raise the hands above the head to hang the clothes, as the reach is about level with the waist.

The Superior Window Clothes Drier.

Remington Autoloading Repeating Rifle.

Remington Arms Company, 313 Broadway, New York, is putting on the market the autoloading repeating rifle shown herewith, which, it is remarked, will knock down the biggest game and keep it down. The cartridge used having a higher velocity and heavier bullet than .30-30, .303, .32 or .35 self-loading, is much more powerful, delivering a blow of stunning force. Like the Remington autoloading shotgun, it utilizes its recoil to eject, reload and cock the arm, thus reducing the "kick" on the shoulder. It is a 5-shot repeater, and the cartridges are introduced into the gun in clips of five. It is alluded to as absolutely safe, having a solid breech and locking device. The breech is locked by a turned bolt which allows the use of high power cartridges. The trigger pull is extra light and the rifle will not jar off. At present the rifle is made in .35 caliber Remington central fire rimless cartridges with 200 grain bullet and a velocity of about 2000 ft. per second. Later the rifle will be furnished in the following calibers: .25, .35, .30-30 and .32 special. The rifle weighs about 7¾ lb., with 22 in. barrel only, take-down model and can be used either as a single shot or a repeating rifle.



Remington Autoloading Repeating Rifle.

PAINTS, OILS AND COLORS

Animal, Fish and Vegetable Oils—

	℔ gal.
Linseed, City, raw	38 @39
City, Boiled	40 @41
State and Western, raw	37 @38
Raw Calcutta Seed	68 @..
Lard, Extra Prime, Winter	69 @70
Extra No. 1	46 @47
No. 1	40 @44
Cotton-seed, Crude, f.o.b. mills	22½@25
Summer Yellow, Prime	37½@38
Summer Yellow, off grades	@..
Sperm, Crude	53 @..
Natural Spring	@..
Bleached Spring	@..
Natural Winter	63 @65
Bleached Winter	66 @67
Bleached Winter, Extra	68 @69
Tallow, Prime	31 @33
Whale, Crude	32 @33
Natural Winter	43 @44
Bleached Winter	45 @46
Extra Bleached Winter	47 @48
Menhaden, Brown, Strained	28 @29
Light, Strained	27 @30
Bleached, Winter	@..
Extra Bleached, Winter	@..
Southern	@..
Cocoanut, Ceylon	℔ lb ..@ 7¾
Cochin	℔ lb 8½@ 9
Cod, Domestic, Prime	30 @33
Newfoundland	35 @37
Red, Elaine	37 @42
Red, Saponified	℔ lb 4½@ 5
Olive, Italian, bbls	55 @57
Neatsfoot, Prime	48 @49
Palm, Lagos	℔ lb 6¼@ 6¼

Mineral Oils—

Black, 29 gravity, 25@30 cold test	℔ gal. 10½@11¼
29 gravity, 15 cold test	11½@12½
Summer	10½@11½
Cylinder, light filtered	18 @19
Dark filtered	16 @17
Paraffine, 903-907 gravity	13¼@14
903 gravity	12½@13
883 gravity	10¼@10¾
Red	12½@14

Miscellaneous—

Barytes:	
White, Foreign	℔ ton $17.50@19.00
Amer. floated	℔ ton 19.00@.....
Off color, No. 2	℔ ton 13.50@15.00
Chalk, in bulk	℔ ton 3.00@ 3.25
In bbls	℔ 100 lb .....@ .35
China Clay, English	℔ ton 11.00@17.00
Cobalt, Oxide	℔ 100 lb 2.50@ 2.60
Whiting, Commercial	℔ 100 lb .43@ .48
Gilders	℔ 100 lb .50@ .55
Ex. Gilders	℔ 100 lb .55@ .60

Putty, Commercial—℔ 100 lb

In bladders	$1.70 @1.85
In bbls. or tubs	1.20 @1.40
In 1 lb to 5 lb cans	2.65 @2.95
In 12½ to 50 lb cans	1.50 @1.90

Spirits Turpentine—℔ gal.

In Oil bbls	64 @64½
In machine bbls	64½@65

Glue—

	℔ lb
Cabinet	11 @15
Common Bone	7 @ 9
Extra White	18 @24
Foot Stock, White	11 @14
Foot Stock, Brown	8 @11
German Hide	12 @18
French	10 @40
Irish	13 @16
Low Grade	9 @12
Medium White	14 @17

Gum Shellac—

	℔ lb
Bleached Commercial	47 @47½
Bone Dried	57 @59
Button	40 @50
Diamond I.	53 @55
Fine Orange	50 @52
A. C. Garnet	47 @47½
G. A. L. Garnet	45 @45½
D. C.	55 @58
Octagon B.	@52
T. N.	@50
V. S. O.	54 @55

Colors in Oil—

	℔ lb
Black, Lampblack	12 @14
Blue, Chinese	36 @46
Blue, Prussian	32 @36
Blue, Ultramarine	13 @16
Brown, Vandyke	11 @14
Green, Chrome	12 @16
Green, Paris	@21
Sienna, Raw	12 @15
Sienna, Burnt	12 @15
Umber, Raw	11 @14
Umber, Burnt	11 @14

White Lead, Zinc, &c.—

	℔ lb
Lead, English white, in Oil	9½@10
Lead, American white, in Oil:	
Lots of 500 lb or over	@ 7¼
Lots less than 500 lb	@ 7¾
In Barrels	@ 6¾
Lead, White, in oil, 25 lb tin pails, add to keg price	@ ⅛
Lead, White, in oil, 12½ lb tin pails, add to keg price	@ 1
Lead, White, in oil, 1 to 5 lb ass'ted tins, add to keg price	@ 1¼

Lead, American, Terms: For lots 12 tons and over ¼¢ rebate; and 2% for cash if paid in 15 days from date of invoice; for lots of 500 lbs. and over 2% for cash if paid in 15 days from date of invoice, for lots of less than 500 lbs. net.

	℔ lb
Lead, White, Dry, in bbls	6¼@ 6¾
Zinc, American, dry	5¾@ 5½
Zinc, French:	
Antwerp, Red Seal, dry	8¾
Antwerp, Green Seal, dry	10¾
Paris, Red Seal, dry	9¼
Paris, Green Seal, dry	11

Zinc, V. M. French, in Poppy Oil:
Green Seal:
Lots of 1 ton and over 13¼@13¾
Lots of less than 1 ton 13⅜@13⅞

Zinc, V. M. French, in Poppy Oil:
Red Seal:
Lots of 1 ton and over 11⅞@12⅜
Lots of less than 1 ton 12⅛@12⅝
Discounts.—French Zinc.—Discounts to buyers of 10 bbl. lots of one or mixed grades, 1%; 25 bbls., 2%; 50 bbls., 4%.

Dry Colors—

	℔ lb
Black, Carbon	5 @10
Black Drop, American	4 @ 6
Black Drop, English	5 @15
Black, Ivory	16 @20
Lamp, Com	4½@ 6
Blue, Celestial	4 @ 6
Blue, Chinese	29 @32
Blue, Prussian	27 @30
Blue, Ultramarine	4½@15
Brown, Spanish	½@ 1
Carmine, No. 40	$2.90@3.00
Green, Chrome, ordinary	3½@ 6
Green, Chrome, pure	17 @25
Lead, Red, bbls., ½ bbls. and kegs:	
Lots 500 lb or over	@ 7¼
Lots less than 500 lb	@ 7¾
Litharge, American, bbls	7¼@ 7¾
Ocher, American	℔ ton $8.50@16.00
American Golden	2½@ 3½
French	1¼@ 2½
Foreign Golden	3 @ 4
Orange Mineral, English	10 @12
French	10¾@12
German	8½@10
American	8½@ 8¾
Red, Indian, English	4½@ 8½
American	3 @ 3¼
Red, Turkey, English	4 @10
Red, Tuscan, English	7 @10
Red, Venetian, Amer.	℔ 100 lb $0.50@1.25
English	100 lb $1.15@1.75
Sienna, Italian, Burnt and Powdered	3 @ 9½
Italian, Raw, Powdered	3 @ 6½
American, Raw	1¼@ 2
American Burnt and Pow	1¼@ 2
Talc, French	℔ ton $17.00@25.00
American	℔ ton 17.00@25.00
Terra Alba, French	℔ 100 lb .90@ 1.00
English	℔ 100 lb .80@ 1.00
American	℔ 100 lb, No. 1 .75@ .80
American	℔ 100 lb, No. 2 .60@ .65
Umber, T'key, Bnt. & Pow	2¼@ 3½
Turkey, Raw and Powdered	2¼@ 3½
Burnt, American	1¼@ 2
Raw, American	1¼@ 2
Yellow Chrome	12 @14
Vermilion, American Lead	10 @25
Quicksilver, bulk	65 @..
Quicksilver, bags	@66
English, Import	65 @70
Chinese	$0.90@1.00

Current Hardware Prices.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33⅓ @ 33⅓ & 10% signifies that the price of the goods in question ranges from 33⅓ per cent. discount to 33⅓ and 10 per cent. discount.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued May, 1906, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters, Blind—

Domestic, ℔ doz. $3.00.....33⅓%
North's 10%
Zimmerman's—See Fasteners, Blind.

Window Stop—

Ives' Patent.....35%
Taplin's Perfection.....35%

Ammunition—See *Caps, Cartridges, Shells, &c.*

Anvils—American—

Eagle Anvils.....℔ lb 7 @7¼¢
Hay-Budden, Wrought.....9½@9¾¢
Trenton .....℔ lb 9½@9¾¢

Imported—

Peter Wright & Sons, ℔ lb, 84 to 349 lb, 11¢; 350 to 600 lb, 11½¢.

Anvil, Vise and Drill—

Millers Falls Co., $18.00.....15&10%

Apple Parers—See *Parers, Apple, &c.*

Aprons, Blacksmiths'—

Livingston Nail Co.....33⅓%

Augers and Bits—

Com. Double Spur.....75@75&5%
Jennings' Patn., reg. finish....50&10@60%
Black Lip or Blued.....60&10%
Boring Mach. Augers.....70&10%
Car Bits, 12-in. twist.....50&10%
Ford's Auger and Car Bits.....40&5%
Forstner Pat. Auger Bits.....25%
C. E. Jennings & Co.:
No. 10 ext. lip. R. Jenning' list..25%
No. 30, R. Jennings' list.....40&7½%
Russell Jennings'.....25&10&2½%
L'Hommedieu Car Bits.....15%
Mayhew's Countersink Bits.....45%
Millers Falls.....50&10&7½%
Pugh's Black.....20%
Pugh's Jennings' Pattern.....35%
Snell's Auger Bits.....60%
Snell's Bell Hangers' Bits.....60%
Snell's Car Bits, 12-in. twist.....60%
Snell's King Auger Bits.....50%
Wright's Jennings' Bits.....50%

Bit Stock Drills—See *Drills, Twist.*

Expansive Bits—

Clark's small, $18; large, $26....50&10%
Clark's Pattern, No. 1, ℔ doz. $28; No. 2, $18.....60&10&10%
Ford's, Clark's Pattern.....60%
C. E. Jennings & Co., Steer's Pat..25%
Lavigne Pat., small size, $18.00; large size, $26.00.....70&10%
Swan's 60%

Gimlet Bits—

Per gro.
Common Dble. Cut....$3.00@3.25
German Pattern, Nos. 1 to 10, $4.80; 11 to 13, $5.75

Hollow Augers—

Bonney Pat., per doz..$5.50@6.00
Ames .....25&10%
Universal 20%
Wood's Universal.....25%

Ship Augers and Bits—

Ship Augers.....45&5@—%
Ford's .....33⅓&5%
C. E. Jennings & Co.:
L'Hommedieu's 15%
Watrous' .....33⅓&7½%
Snell's 40%

Awl Hafts—See *Handles, Mechanics' Tool.*

Awls—

Brad Awls:
Handled .....gro. $2.75@3.00
Unhdled, Shldered..gro.63@66¢
Unhandled, Patent..gro.66@70¢
Peg Awls:
Unhandled, Patent..gro. 31@34¢
Unhdled, Shldered..gro. 65@70¢
Scratch Awls:
Handled, Com...gro. $3.50@4.00
Handled, Socket..gro.$11.50@12.00

Awl and Tool Sets—See *Sets, Awl and Tool.*

Axes—

Single Bit, base weights:
First Quality.....$4.75@5.00
Second Quality.....$4.25@4.50
Double Bit, base weights:
First Quality.....$7.00@7.50
Second Quality.....$6.50@6.75

Axle Grease—See *Grease, Axle*

Axles—*Iron or Steel*

Concord, Loose Collar...4¼@4¾¢
Concord, Solid Collar...4¾@5¼¢
No. 1 Common, Loose...3¼@3¾¢
No. 1½ Com., New Style3¾@4¼¢
No. 2 Solid Collar.....4@4½¢
Half Patent:
Nos. 7, 8, 11 and 12....75@75&5%
Nos. 13 to 14.....70&10@75&5%
Nos. 15 to 18...75&10@75&10&5%
Nos. 19 to 22...75&10@75&10&5%

Boxes, Axle—

Common and Concord, not turned lb., 4½@5¢
Common and Concord, turned. lb., 5½@6¢
Half Patent.....lb., 8½@9¢

Bait—Fishing—

Hendryx:
A Bait.....20%
B Bait.....25%
Competitor Bait.....20&5%

Balances—Sash—

Caldwell new list.....50%
Pullman .....50&10@60%

Spring—

Spring Balances.....50&10@60%
Chatillon's:
Light Spg. Balances.....50&10%
Straight Balances.....40@50%
Circular Balances.....50&10%
Large Dial.....30%

Barb Wire—See *Wire, Barb.*

Bars—Crow—

Steel Crowbars, 10 to 40 lb.... per lb., 3¼@3½¢

Towel

No. 19 Ideal, Nickel Plate..℔ gro. $8.50

Beams, Scale—

Scale Beams.....40&10@50%
Chattillon's No. 1.....30%
Chattillon's No. 2.....40%

Beaters, Carpet—

Holt-Lyon Co.:
No. 13 Wire Tinned ℔ doz.....$0.75
No. 12 Wire Coppered ℔ doz, $0.75; Tinned $0.85
No. 11 Wire Coppered ℔ doz. $1.10; Tinned $1.20
No. 10 Wire Galvanized..℔ doz. $1.50
Western W. G. Co.:
No. 1 Electric.....℔ gro. $7.80
No. 2 Buffalo.....℔ gro. $9.00
No. 3 Perfection Dust.....℔ gro. $8.00

Egg—

Holt-Lyon Co.:
Holt, per doz., No. 5, $0.80; No. 1, Jap'd, $1.15; No. 1, Tin'd, $1.40; No. B, Jap'd, $1.40; No. 2, Tin'd, $1.85; No. 2, Jap'd, $1.35; No. 6, $1.60. Lyon, Jap'd, per doz., No. 2, $1.35; No. 3, $1.50.
Taplin Mfg. Co.:
Improved Dover, per gro., No. 60, $6.00; No. 75, $6.50; No. 100, $7.00; No. 102, Tin'd, $8.50; No. 150, Hotel, $15.00; No. 152, Hotel Tin'd, $17.00; No. 200, Tumbler, $8.50; No. 202, Tumbler Tin'd, $9.50; No. 300, Mammoth, per doz., $25.00.
Turner & Seymour Mfg. Co.:
T. & S. Dover.....$6.00
Western, W. G. Co., Buffalo.....$7.00
Wonder (R. M. Co.)..℔ gro, net, $6.00

Bellows—

Blacksmith, Standard List.. 60&10@60&10&5%

Hand—

Inch.. 6 7 8 9 10
Doz...$4.75 5.70 6.65 7.60 8.85

Molders—

Inch.. 9 10 11 12 14
Doz...$8.00 9.00 10.50 12.50 14.50

Net Prices.

Bells—Cow—

Ordinary Goods...75&5@75&10&5%
High grade.....70&10@75%
Jersey .....75&10%
Texas Star.....50%

Door—

Abbe's Gong.....45%
Barton Gong.....50%
Home, R. & E. Mfg. Co.'s.....55&10%
Trip Gong.....50&10@50&10&5%
Yankee Gong.....55%

Hand—

Polished, Brass.....60&10%
White Metal.....60%
Nickel Plated.....50&10@60%
Swiss .....60@60&7½%
Cone's Globe Hand Bells.....33⅓@35%
Silver Chime.....33⅓@35%

Miscellaneous—

Farm Bells.....lb., 2¼@2½¢
Church and School.....60%
American Tube & Stamping Co. Gongs 15%
Table Call Bells.....50@50&10%

Belting—Leather—

Extra Heavy, Short Lap..60&5%
Regular Short Lap....60&10&5%
Standard 10%
Light Standard.....70&5%
Cut Leather Lacing.....45%
Leather Lacing Sides, per sq. ft. 25¢

Rubber—

Agricultural (Low Grade).... 75@75&5%
Common Standard....70@70&10%
Standard .....60&5@60&10%
Extra .....60@60&5%
High Grade.....50&5@50&10%

Bench Stops—See *Stops, Bench*

Benders and Upsetters, Tire—

Detroit Perfected Tire Bender.....40%
Detroit Stoddard's Lightning Tire Upsetters, No. 1, $4.25; No. 2, $7.25; No. 3, $10.50; No. 4, $16.25; No. 5, $20.50.
Green River Tire Benders and Upsetters 20%

Bicycle Goods—

John S. Leng's Son & Co.'s 1906 list: Chain, Parts, Spokes.....50%
Tubes 60%

Bits—

Auger, Gimlet, Bit Stock Drills, &c.—See *Augers and Bits.*

Blocks—Tackle—

Common Wooden.....75%
Hartz St. Tackle Blocks.....50@50&5%
B. & L. B. Co.:
Boston Wood Snatch, 50%; Eclipse Steel, 75%; Hollow Steel, 50&10%; Star Wire Rope, 50%; Tarbox Metal Snatch, 50%; Tarbox New Style Steel, 50&10%; Wire Rope Snatch, 50%.
Lane's Patent Automatic Lock and Junior 30%
Stowell's Novelty, Mal. Iron.....50%
Stowell's Loading.....50&10%
See also Machines, Hoisting.

Boards, Stove—

Zinc, Crystal, &c.....40%
Paper Embossed.....40&10%

Boards, Wash—

See *Washboards.*

Bobs, Plumb—

Keuffel & Esser Co.....33⅓%

Bolts—

Carriage, Machine, &c.—

Common Carriage (cut thread): ⅝ × 6 and smaller.....75@—% Larger and Longer..... 60&10@60&10&5%
Phila. Eagle $3.00 list May 21, '99 40%
Bolt Ends.....65@65&5%
Machine, ⅜ x 4 and smaller.. 75@—%
Machine, larger and longer.. 65@65&5%

Door and Shutter—

Cast Iron Barrel, Japanned, Round Brass Knob:
Inch..... 3 4 5 6 8
Per doz.$1.30 .35 .45 .60 .80
Cast Iron Spring Foot, Jap'd:
Inch..... 6 8 10
Per doz.....$1.20 1.50 2.25
Cast Iron Chain, Flat, Japanned:
Inch..... 6 8 10
Per doz.....$1.00 1.40 1.85
Cast Iron Flat Shutter, Jap'd., Brass Knobs:
Inch..... 6 8 10
Per doz.....$0.75 .35 1.25
Wrought Barrel Japd..80@80&10%
Barrel Bronzed.....50@50&10%
Spring .....70&10@70&10&10%
Shutter .....50&5@50&10&5%
Square Neck.....75@75&10%
Square ...66⅔&10@66⅔&10&10%
Ives' Patent Door.....50%

Plow and Stove—

Plow .....65&10@—
Stove .....82½&10

Tire—

Common Iron.....80%
Norway Iron.....80%
American Screw Company:
Norway Phila., list Oct. 16, '94...80%
Eagle Phila., list Oct. 16, '94....82½%
Bay State, list Dec. 28, '99.....80%
Franklin Moore Co.:
Norway Phila., list Oct. 16, '94....80%
Eagle Phila., list Oct. 16, '94....82½%
Eclipse, list Dec. 28, '99.....80%
Mount Carmel Bolt Co.:
Norway Phila., list Oct. 16, '94....80%
Eagle Phila., list Oct. 16, '94....82½%
Mount Carmel, list Dec. 28, '99...80%
Russell, Burdsall & Ward Bolt & Nut Co.:
Empire, list Dec. 28, '99.....80%
Norway Phila., list Oct., '94.....80%
Upson Nut Co.:
Tire Bolts.....72½%

Borers, Tap—

Borers Tap, Ring, with Handle:
Inch..... 1¼ 1½ 1¾ 2
Per doz...$4.80 5.60 6.40 8.00
Inch 2¼ 2½
Per doz.....$5.65 11.50
Enterprise Mfg. Co., No. 1, $1.25; No. 2, $1.65@$1.75; No. 3, $2.50 each...25%

Boxes, Mitre—

C. E. Jennings & Co.....30%
Langdon .....15&10%
Perfection 40%
Seavey 33⅓%
Stanley R. & L. Co.: Nos. 240 to 460, 30%; Nos. 50 and 60.....35%

Braces—

Common Ball Bearing, American..$1.25@1.50
Barber's .....50&10&10@60&10%
Fray's Genuine Spofford's.....60%
Fray's No. 70 to 120, 81 to 123, 207 to 411 .....60%
C. E. Jennings & Co.....50&5%
Mayhew's Ratchet.....60%
Mayhew's Quick Action Hay Pat..50%
Millers Falls Drill Braces.....25&10%
P., S. & W. Co., Peck's Pat.60@60&5%
Stanley R. & L. Co.:
Stanley, 35%; Victor.....45%

Brackets—

Wrought Steel...80&10@80&10&5%
Griffin's Pressed Steel.....80@80&10%
Griffin's Folding Brackets.....70&10%
Stowell's Cast Shelf, 75%; Sink...50%
Western, W. G. Co., Wire.....60&10%

Bright Wire Goods—

See *Wire and Wire Goods.*

Broilers—

Kilbourne Mfg. Co.....75&20%
Western, W. G. Co.....80%
Wire Goods Co.....75@75&10%

Buckets, Galvanized—

Price per dozen.

Quart.....	10	12	14
Water, Regular...1.40	*1.70*	*1.90*	
Water, Heavy.....3.40	*3.70*	*3.80*	
Fire, Rd. Bottom..2.30	*2.55*	*2.95*	
Well 2.55	*2.87*	*3.15*	

Bucks, Saw—

Hoosier.....℔ gro. $36.00

Bull Rings—See *Rings, Bull*

Butts—Brass—

Wrought, list, Sept., '96..15@—%
Cast Brass, Tiebout's.....50%

Cast Iron—

Fast Joint, Broad....40&10@50%
Fast Joint, Narrow...40&10@50%
Loose Joint.....70&10@75%
Loose Pin.....70&10@75%
Mayer's Hinges.....70@70&5
Parliament Butts.....70@70&5

Wrought Steel—

	Discount.
Reversible and Broad	*75&5%*
Light Reversible, Light Narrow	*75&10%*
Loose Joint, Narrow, L't Inside Blind, etc.....	*75%*
Back Flaps, Table, Chest.	*70&10%*

Extra, 10&10@

Cages, Bird—

Hendryx Brass: Series 3000, 5000, 1100, 5%; 1200, 33⅓%; 200, 300, 600, 900 .....40&10%
Hendryx Bronze: Series 700, 800.... 40&10%
Hendryx Enameled.....40&10%

Calipers—See *Compasses.*

Calks, Toe and Heel—

Blunt, 1 prong.....per lb., 4@4¼¢
Sharp, 1 prong...per lb., 4¼@4¾¢
Burke's Blunt, 4@4¼¢; Sharp, 4½@4¾¢

Gautier, Blunt, 4@4¼¢; Sharp 4½@4¾¢
Perkins', Blunt, ℔ lb, 3.65¢; Sharp, 4.15¢

Can Openers—
See *Openers, Can.*

Cans, Milk—

	5	8	10 gal.
Illinois Pattern	$1.35	1.85	2.05 each.
New York Pattern	1.50	2.20	2.45 each.
Baltimore Pattern	1.50	2.20	2.45 each.
Dubuque	1.35	1.60	1.75 each.

Cans, Oil—
Buffalo Family Oil Cans:

3	5	10 gal.
$48.00	60.00	129.60 gro., net.

Caps, Percussion—
Eley's E. B. ..... 52@55¢
G. D. ..... per M 34@35¢
F. L. ..... per M 40@42¢
G. E. ..... per M 48@50¢
Musket ..... per M 62@63¢

Primers—
Berdan Primers, $2 per M ... 20%
B. L. Caps (Sturtevant Shells) $2 per M 30%
All other primers per M. $1.52@1.60

Cartridges—
Blank Cartridges:
32 C. F., $5.50 ..... 10&5%
38 C. F., $7.00 ..... 10&5%
22 cal. Rim, $1.50 ..... 10&5%
32 cal. Rim, $2.75 ..... 10&5%
B. B. Caps, Con. Ball, Swgd. $1.90
B. B. Caps, Round Ball $1.49
Central Fire 25%
Target and Sporting Rifle .. 15&5%
Primed Shells and Bullets .. 15&10%
Rim Fire, Sporting 50%
Rim Fire, Military ..... 15&5%

Casters—
Bed ..... 70@70&10%
Plate ..... 60&10@60&10&5%
Philadelphia ..... 75@75&10%
Acme, Ball Bearing 33⅓%
Boss ..... 70&10%
Boss Anti-Friction ..... 70&10%
Gem (Roller Bearing) 80%
Martin's Patent (Phoenix) 45%
Standard Ball Bearing 45%
Tucker's Patent low list 30%
Yale (Double Wheel) low list 50%

Cattle Leaders—
See *Leaders, Cattle.*

Chain, Coil—
American Coil, Straight Link:

5-16	¼	5-16	⅜	7-16	½	9-16
$3.70	5.90	4.95	4.20	4.05	3.95	3.90

⅝	¾	⅞ to 1	1⅛ to 1¼ inch.
$3.85	5.70	3.65	3.80

German Coil ..... 60&10&10@70%

Halter—
Halter Chains ..... 60&5@60&10%
German Pattern Halter Chains, list July 2½, '97 ..... 60&10&10%
Covert Mfg. Co.
Halter ..... 35&5%

Cow Ties—
See *Halters and Ties.*

Trace, Wagon, &c.—
Traces, Western Standard: 100 pr.
6½—6-3, Str'ght, with ring. $25.00
6½—6-2, Str'ght, with ring. $26.00
6½—8-2, Str'ght, with ring. $30.00
6½—10-2, Str'ght, with ring. $35.00
NOTE—Add 2c per pair for Hooks. Twist Traces; add per pair for Nos. 2 and 3, 2c; No. 1, 3c; No. 0, 4c to price of Straight Link.
Eastern Standard Traces, Wagon Chain, &c. ..... 60&10%

Miscellaneous—
Jack Chain, list July 10, '93:
Iron ..... 60&10%
Brass ..... 60&10%
Safety Chain ..... 70&10%
Gal. Pump Chain ..... lb. 4@4½%
Covert Mfg. Co.:
Breast, Halter, Heel, Rein, Stallion 40%
Oneida Community:
Am. Dog Leads and Kennel Chains, 40@40&5%
Niagara Dog Leads and Kennel Chains ..... 45@50&5%
Wire Goods Co.:
Dog Chain ..... 70&10%
Universal Dbl. Jointed Chain 50%

Chain and Ribbon, Sash—
Oneida Community:
Copper Chain, 60&5%; Steel Chain, 60%
Pullman:
Bronze Chain, 60%; Steel Chain, 60&10%
Sash Chain Attachments, per set .. 8¢
Aluminoy Sash Ribbon, per 100 ft. ..... $1.25@3.00
Sash Ribbon Attachments, per set .. 8¢

Chalk—(From Jobbers.)
Carpenters' Blue .... gro., 45@—¢
Carpenters' Red .... gro., 40@—¢
Carpenters' White ... gro., 35@—¢
Some jobbers sell at lower prices than above.

Checks, Door—
Bardsley's 45%
Pullman, per gro. $54.00
Russwin 40%

Chests, Tool—
American Tool Chest Co.:
Boys' Chests, with Tools 35%
Youths' Chests, with Tools 40%
Gentlemen's Chests, with Tools .. 30%
Farmers', Carpenters,' etc., Chests, with Tools 20%
Machinists' and Pipe Fitters' Chests, Empty 50%
Tool Cabinets 50%
C. E. Jennings & Co.'s Machinists' Tool Chests ..... 33⅓&10%

Chisels—
Socket Framing and Firmer
Standard List .. 75&10@75&10&5%
Buck Bros. 30%
Charles Buck Edge Tool Co. 30%
C. E. Jennings & Co.:
Socket Firmer No. 10 ..... 60%
Socket Framing No. 15 ..... 60%
Swan's 75%
L. & I. J. White Co. ..... 30@30&5%

Tanged—
Tanged Firmers ..... 33 1-3@40%
Buck Bros. 30%
Charles Buck Edge Tool Co. 30%
C. E. Jennings & Co. Nos. 191, 181, 25%
L. & I. J. White Co. ..... 25&5%

Cold—
lb.
Cold Chisels, good quality .. 13@15¢
Cold Chisels, fair quality .. 11@12¢
Cold Chisels, ordinary ... 9@10¢

Chucks—
Almond Drill Chucks 35%
Almond Turret Six-Tool Chuck ... 35%
Beach Pat., each $8.00 ..... 35&5%
Empire 25%
Blacksmiths' 25%
Jacobs' Drill Chucks 35%
Pratt's Positive Drive 25%
Skinner Patent Chucks:
Independent Lathe Chucks .... 40&10%
Universal, Reversible Jaws 40%
Combination, Reversible Jaws 40%
Drill Chucks, New Model, 25%; Standard, 40&10%; Skinner Pat. 25%; Positive Drive 33⅓%
Planer Chucks 30%
Face Plate Jaws ..... 40&10%
Standard Tool Co.:
Improved Drill Chuck 45%
Union Mfg. Co.:
Combination, Nos. 1, 2, 3, 4, 5, 6, 7, 8 and 17, 40%; No. 21 ..... 35%
Scroll Combination, Nos. 82 and 84 ..... 30%
Geared Scroll, Nos. 33, 34 and 35 .. 35%
Independent Iron, Nos. 18 and 318 .. 40%
Independent Steel, No. 64 ..... 30%
Union Czar Drill, Nos. 000, 101, 103 ..... 35%
Universal 11, 12, 16, 17, 13, 14, 15 .. 40%
Universal, No. 42 ..... 35%
Iron Face Plate Jaws, Nos. 28, 30, 48 and 50 ..... 40%
Steel Face Plate Jaws, Nos. 70 and 72 ..... 35%
Westcott Patent Chucks:
Lathe Chucks 50%
Little Giant Auxiliary Drill 50%
Little Giant Double Grip Drill .. 50%
Little Giant Drill, Improved 50%
Oneida Drill 50%
Scroll Combination Lathe 50%

Clamps—
Adjustable, Hammers' ..... 20@20&5%
Carriage Makers', P., S. & W. Co. ..... 40&10@50%
Besly, Parallel ..... 33⅓&10%
Lineman's, Utica Drop Forge & Tool Co. 40%
Wood Workers, Hammers' ..... 40&10%
Saw Clamps, *see* Vises, Saw Filers'.

Cleaners, Drain—
Iwan's Champion, Adjustable 55%
Iwan's Champion, Stationary 45%

Sidewalk—
Star Socket, All Steel .. ℔ doz. $4.05 net
Star Shank, All Steel .. ℔ doz. $3.24 net
W. & C. Shank, All Steel, ℔ doz., 7⅛ in., $3.00; 8 in., $3.25.

Cleavers, Butchers'—
Foster Bros. 30%
Fayette R. Plumb 30%
L. & I. J. White Co. 30%

Clippers, Horse and Sheep—
Chicago Flexible Shaft Company:
'98 Chicago Horse, each .. $8.75
1902 Chicago Horse, each .. $10.75
20th Century Horse, each .. $5.00
Lightning Belt Horse, each .. $15.00
Chicago Belt Horse, each .. $20.00
Stewart's Enclosed Gear Horse, each $6.75
Stewart's Patent Sheep Shearing Machine, each $12.75
} 20%

Clips, Axle—
Regular Styles, list July 1, '05 .. 80%

Cloth and Netting, Wire
—See *Wire, &c.*

Cocks, Brass—
Hardware list:
Plain Bibbs, Globe, Kerosene, Racking, Liquor, Bottling, &c 70%
Compression Bibbs ..... 65&10%

Coffee Mills—
See *Mills, Coffee.*

Collars, Dog—
Nickel Chain, Walter B. Stevens & Son's list 40%
Leather, Walter B. Stevens & Son's list 40%

Combs, Curry—
Metal Stamping Co. 40%

Compasses, Dividers, &c.
Ordinary Goods ..... 70&10@75%
Bemis & Call Hdw. & Tool Co.:
Dividers 65%
Calipers, Double, 65%; Inside or Outside 65%
Calipers, Wing 60%
Compasses 50%
Wm. Schollhorn Co.:
Excelsior Dividers 60%
Lodi Dividers 75%

Conductor Pipe,—
L. C. L. to Dealers:

Territory:	*Galvanized*		
	Galv. Steel.	*Charcoal Iron.*	*Copper. 14, 16&20 oz.*
Eastern:			
	60&30%	60&2½%	40&10%
Central:			
	70%	55&7½%	40&7½%
Western and Southern:			
	65&10%	55&2½%	40&5%
So. Western			
	62½&7½%	50&5%	40&2½%

Terms, 60 days; 2% cash 10 days. Factory shipments generally delivered.
See also Eave Troughs.

Coolers, Water—

Gal. each..	2	3	4	6	8
Labrador ...	$1.20	$1.50	$1.80	$2.10	$2.70
Gal.	3	4	5	6	8
Iceland, ea..	$1.80	$2.10	$2.40	$3.00	
Gal.	2	3	4	6	8
Galvanized, ea.	$1.85	$2.00	$2.25	$2.90	$3.90
Galvanized, Lined, side handles, Gal.	2	3	4	6	8
Each	$1.95	$2.15	$2.40	$3.30	$4.15

White Enameled, 25%; Agate Lined, 25%

Coopers' Tools—
See *Tools, Coopers'.*

Coppers' Soldering—
Soldering Coppers, 3 lbs. to pair and heavier, 23¢; lighter than 3 lb. to pair ..... 25¢

Cord— Sash—
Braided, Drab ..... lb. 35¢
Braided, White, Com., Nos. 8 to 12, 24¢; No. 7, 24½¢; No. 6, 25½¢.
Cable Laid Italian ..... lb., A, 18¢; B, 16¢
Common India ..... lb. 10@10½¢
Cotton Sash Cord, Tw'ted .. 17@19¢
Patent Russia ..... lb. ..@14¢
Cable Laid Russia .... lb. ..@15¢
India Hemp, Br'd'd .. lb. 18@18½¢
India Hemp, Twisted .. lb. 12@13¢
Patent India, Twisted .. lb. 12@13¢
Anniston Cordage Co.: ℔ lb, solid Braided, Nos. 8 to 12, $0.24; No. 7, $0.24½; No. 6, $0.25½; ℔ doz., 50 ft. Oriole $2.00; 50 ft., Columbia, $0.85; 50 ft., Victors, $1.00; 50 ft., 6-Thread, $1.10; 60 ft., 3-Thread, $0.95; 50 ft., Manila, $1.40; 60 ft., Jute, $0.75.
Pearl Braided, cotton, No. 6, ℔ lb, 25½¢; No. 7, 25¢; Nos. 8 to 12, 24½¢
Eddystone Braided, Nos. 8, 9 and 10, 25¢; 7, 25½¢; 6, 26½¢.
Harmony Cable Laid Italian, Nos. 7 to 10 ..... ℔ lb 23 ¢
Pullman:
Wire Sash Cord 10%
Sash Cord Attachments, per doz. 10¢
Samson, Nos. 8 to 12:
Braided, per lb., Drab Cotton, 40¢; Italian Hemp, 40¢; Linen, 55¢; White Cotton or Spot .. 35 ¢
Massachusetts, White ..... ℔ lb 30 ¢
Massachusetts, Drab ..... ℔ lb 35 ¢
Phoenix, White, Nos. 8 to 12, 27¢; No. 7, 27½¢; No. 6, 28½¢.
Silver Lake, per lb.:
A, Drab, 45¢; A, White, 40¢; B, Drab, 40¢; B, White, 35¢; Italian Hemp, 40¢; Linen .. 57½¢
See also Chain and Ribbon.

Wire, Picture—
List July 10, 1906 .. 85&10&10@—
Hendryx Standard Wire Picture Cord, old list, 85&10%

Cradles—
Grain ..... 40&12½%

Crayons—
White Round Crayons, Cases, 100 gro., $6.50@$7.50 at factory, but lower prices made by jobbers
Zelnicker's Lumber, ℔ gro. White and Purple, Indelible .. $7.50
Blue, Red, Green, Yellow and Terra Cotta, $6.50; Black $4.00
Genuine Soapstone, Metal Workers', 5 in. x ¾ in. Round, $2.50; 5 in. x ¾ in. Square, $1.75; 5 x ½ x 3-16, $2.50; 5 x 1¾ x 3-16 ..... $3.00

Crooks, Shepherds'—
Fort Madison, per doz., Heavy, $7.00; Light $6.50

Crow Bars—See *Bars, Crow.*

Cultivators—
Victor Garden 50%

Cutlery, Table—
International Silver Company:
No. 12 M'd'm Knives, 1847, ℔ doz. $3.50
Star, Eagle, Rogers & Hamilton and Anchor ..... ℔ doz. $3.00
Wm. Rogers & Son ..... ℔ doz. $2.50

Cutters— Glass—
H. H. Mayhew Co. 40%
Red Devil 50%
Smith & Hemenway Co. 50%
Woodward 40%

Meat and Food—
American 30%

Nos.	1	2	3	4	B	5
Each	$5	$7	$10	$25	$50	$60

Enterprise:

Nos.	5	10	12	22	32	
Each	$2	$3	$2.75	$1.50	$6	25@25&7½%

No. 202, $1.50 ..... 40&7½%
Dixon's ..... ℔ doz. 40@50%

Nos.	1	2	3	4
	$14.00	$17.00	$19.00	$30.00

Ideal ..... 40&10@50%
Little Giant ..... ℔ doz. 40@50%

Nos.	305	310	312	320	322
	$35.00	$48.00	$44.00	$72.00	$68.00

N. E. Food Choppers 25%
New Triumph No. 605, ℔ doz. $24.00 .. 40@50%
Russwin Food, No. 1, $24.00; No. 2, $27.00 ..... 45&10&10%
Woodruff's ..... ℔ doz. 40@50%

Nos.	100	150
	$15.00	$18.00

Enterprise Beef Shavers ..... 25@30%

Slaw and Kraut—
Henry Disston & Sons:
Slaw and Kraut Cutters, Corn Graters, &c. 35%
J. M. Mast Mfg. Co.:
Slaw Cutters, 1 Knife .... ℔ doz. $3.00
Combined Slaw Cutter and Corn Grater ..... ℔ doz. $4.00
Tucker & Dorsey Mfg. Co.:
Kraut Cutters 40%
Slaw Cutters, 1 Knife .. ℔ gr. $18@$20
Slaw Cutters, 2 Knife .. ℔ gr. $22@$30

Tobacco—
All Iron, Cheap .. doz. $1.25@$4.50
Enterprise ..... 25@30%
National, ℔ doz., No. 1, $21; No. 2, $18 ..... 40%

Diggers, Post Hole, &c.—
Dalbey Post Hole Auger .. per doz., $9.00
Disston's:
Rapid, ℔ doz., $24.00 ..... 25%
Samson, ℔ doz., $34.00 ..... 25%
Iwan's Imp'ved Post Hole Auger .. 40&5%
Vaughan Pattern Post Hole Augers, ℔ doz., $6.25
Perfection Post Hole Diggers, ℔ doz. $8.25
Split Handle Post Hole Diggers, ℔ doz. $7.25
Kohler's, ℔ doz., Universal, $14.00; Little Giant, $12.00; Hercules, $10.00; Invincible, $9.00; Rival, $8.00; Pioneer $7.00
Never-Break Post Hole Diggers, ℔ doz., $24.00 ..... 60%

Dividers—See *Compasses.*

Drawers, Money—
Tucker's Pat. Alarm Till No. 1, ℔ doz., $18; No. 2, $15; No. 3, $12; No. 4, $18.

Drawing Knives—
See *Knives, Drawing.*

Dressers, Emery Wheel—
Diamond Emery Wheel Dressers 35%
Diamond Wheel Dresser Cutters 35%

Drills and Drill Stocks—
Common Blacksmiths' Drill, each ..... $1.50@$1.75
Breast, Millers Falls ..... 15&10%
Breast, P., S. & W. 40%
Goodell Automatic Drills .. 40&5@40&10%
Johnson's Automatic Drills, Nos. 2 and 3 ..... 16⅔%
Johnson's Drill Point's 16⅔%
Millers Falls Automatic Drills .. 33⅓&10%
Ratchet, Curtis & Curtis 25%
Ratchet, Parker's, 40%; Weston's .. 40%
Ratchet, Weston's, Style H Improved 40%
Ratchet, No. 812 ..... 40%
Ratchet, Whitney's, P., S. & W. .. 50%
Whitney's Hand Drill, No. 1, $10.00; Adjustable, No. 19, $12.00 ..... 33⅓%

Twist Drills—
Bit Stock ..... 60&10&10@70%
Taper and Straight Shank .... 60&10@60&10&5%

Drivers, Screw—
Screw D'ver Bits, per doz. .. 45@50¢
Balsey's Screw Holder and Driver, ℔ doz., 2½-in., $6; 4-in., $7.50; 6-in., ℔ 50%
Buck Bros.' Screw Driver Bits 30%
Champion 50%
Disston's 70%
Edson 60%
Fray's Hol. H'dle Sets, No. 3, $12 .. 50%
Ford's Brace Screw Drivers .... 40&10%
Gay's Double Action Ratchet 35%
Goodell's Auto .. 50&10&10@50&10&10&5%
Hurwood 40%
Mayhew's Black Handle 40%
Mayhew's Monarch ..... 40&10%
Millers Falls, Nos. 20 and 21 .. 25&10%
Millers Falls, Nos. 11, 12, 41, 42 .. 15&10%
New England Specialty Co. .... 50&10%
Smith & Hemenway Co. ..... 40&5%
H. D. Smith & Co.'s Perfect H'dle .. 40%
Stanley R. & L. Co.'s:
No. 61, Varn, Handles, 65%; No. 86, 75%; Victor, 55%; Defiance .. 70%
Swan's:
Nos. 7565 to 7568, 50%; No. 7540, 40&10%

Eave Trough, Galvanized—

Territory.	*L. C. L. Galvanized*		
	Galv. Steel.	*Charcoal Iron.*	*Copper. 14, 16&20 oz.*
Eastern:			
	80%	70&5%	40&10%
Central:			
	75&10&7½%	70%	40&7½%
Western and Southern:			
	70&20&7½%	60&15&2½%	40&5%
So. Western:			
	70&20%	65&2½%	40&2½%

Terms.—2% for cash. Factory shipments generally delivered.
See also Conductor Pipe and Elbows.

Elbows and Shoes—
Factory shipments, all territories:
Galv. Steel and Galv. C. I.
Standard Gauge ..... 60&10%
No. 26 ..... 50%
No. 24 ..... 35%
No. 22 ..... 10%
Copper 50%

Elbows, Stove Pipe—
Dover, one piece (R. M. Co.) .... 40&10%
Perfect Elbows 40%

Emery, Turkish—

	¼ to 46:	5½ to 220:	Flour.
Kegs ..... lb.	5 ¢	5½¢	8½¢
½ *Kegs* ..... lb.	5½¢	5¾¢	8¾¢
¼ *Keys* ..... lb.	5½¢	6 ¢	9 ¢
10-lb. cans, 10 in case	6½¢	7 ¢	6 ¢
10-lb. cans, less than 10	10 ¢	10 ¢	8 ¢
Less quantity ..	10 ¢	10 ¢	8 ¢

NOTE.—In lots 1 to 3 tons a discount of 10% is given.

Extractors, Lemon Juice

Fasteners, Blind—
—See *Squeezers, Lemon.*

Zimmerman's .....50&10%
Walling's .....40&10%

Cord and Weight—
Ives 33⅓%

Faucets—
Cork Lined.....50@50&10%
Metallic Key, Leather Lined.. 60&10@70%
Red Cedar.....40&10@50%
Petroleum .....70&10@75%
B. & L. B. Co.:
Metal Key.....60&10%
Star 60%
West Lock.....50&10%
John Sommer's Peerless Tin Key....40%
John Sommer's Boss Tin Key.....50%
John Sommer's Victor Mtl. Key.50&10%
John Sommer's Duplex Metal Key..60%
John Sommer's Diamond Lock.....40%
John Sommer's I.X.L. Cork Lined...50%
John Sommer's Reliable Cork Lined... 50&10%
John Sommer's Chicago Cork Lined.60%
John Sommer's O. K. Cork Lined....50%
John Sommer's No Brand, Cedar....50%
John Sommer's Perfection, Cedar....40%
McKenna, Brass:
Burglar Proof, N. P.....25%
Improved, ¾ and ⅞ inch.....25%
Self Measuring:
Enterprise, ℔ doz. $36.00.....40&10%
Lane's, ℔ doz. $36.00.....40&10%
National Measuring, ℔ doz. $36.40&10%

Felloe Plates—
See *Plates, Felloe.*

Files— Domestic—
List revised Nov. 1, 1899.
Best Brands.....70&10@75&10%
Standard Brands.75&10@75&10&10%
Lower Grade....75&10&10@80&10%

Imported—
Stubs' Tapers, Stubs' list, July 24, '97.....33 1-3@40%

Fixtures, Fire Door—
Richards Mfg. Co.:
Universal, No. 103; Special, No. 104 .....$3.75
Fusible Links, No. 96.....50%
Expansion Bolts, No. 107.....60&10%

Grindstone—
Net Prices:

Inch	*15*	*17*	*19*	*21*
Per doz.	*$3.25*	*3.75*	*4.25*	*4.75*

P., S. & W. Co.....30&10@40%
Reading Hardware Co.....60%
Stowell's Giant Grindstone Hanger.. ℔ doz. $6.00
Stowell's Grindstone Fixtures, Extra Heavy, 50&10&10%; Light.....60&10%

Fodder Squeezers—
See *Compressors.*

Forks—
NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.
Iowa Dig-Ezy Potato.....60&10%
Victor, Hay.....60&15&2½%
Victor, Manure.....66⅔%
Victor, Header.....65%
Champion, Hay.....66⅔%
Champion, Header.....65%
Champion, Manure.....60&15&2½%
Columbia, Hay.....60&20%
Columbia, Manure.....70%
Columbia, Spading.....70&12½%
Hawkeye Wood Barley.....40%
W. & C. Potato Digger.....60&10%
Acme Hay.....60&20%
Acme Manure, 4 tine.....60&10&5%
Dakota Header.....60&20%
Jackson Steel Barley.....60&20%
Kansas Header.....65%
W. & C. Favorite Wood Barley.....40%
Plated.—See Spoons.

Frames— Saw—
White, S'g't Bar, per doz..75@80¢
Red, S'g't Bar, per doz..$1.00@1.25
Red, Dbl. Brace, per doz.$1.40@1.50

Freezers, Ice Cream—

Qt.	*1*	*2*	*3*	*4*	*6*
Each	*$1.30*	*$1.60*	*$1.90*	*$2.20*	*$2.80*

Fruit and Jelly Presses—
See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Fuse—
Per 1000 Feet.
Hemp .....$2.75 } *10&2½%*
Cotton .....3.20 }
Waterproof Sgl. Taped.. 3.65 }
Waterproof Dbl. Taped.. 4.40 }
Waterproof Tpl. Taped.. 5.15 }

Gates, Molasses and Oil—
Stebbins' Pattern.....80&10%

Gauges—
Marking, Mortise, &c..50@50&10%
Chapin-Stephens Co.:
Marking, Mortise, &c.....50&50&10%
Scholl's Patent.....50&10@50&10&10%
Door Hangers.....50@50&10%
Disston's Marking, Mortise, &c..67½%
Stanley R. & L. Co.'s Butt and Rabbet Gauge.....33⅓
Marking and Mortise.....60%
Wire, Brown & Sharpe's.....25%
Wire, Morse's.....25%
Wire, P., S. & W. Co.....33⅓%

Gimlets— Single Cut—
Numbered assortments, per gro.
Nail, Metal, No. 1, $2.00; 2, $2.30
Spike, Metal, No. 1, $4.00; 2, $4.30
Nail, Wood Handled, No. 1, $2.50; 2, $2.60
Spike, Wood Handled, No. 1, $4.30; 2, $4.60

Glass, American Window
See *Trade Report.*

Glasses, Level—
Chapin-Stephens Co.....60@60&10%

Glue, Liquid Fish—
Bottles or Cans, with Brush.. 25&10@50%
International Glue Co. (Martin's)..40%

Grease, Axle—
Common Grade....gro. $4.50@6.00
Dixon's Everlasting, 10-lb pails, ea. 85¢; in boxes, ℔ doz., 1 lb. $1.20; 2 lb.....$2.00
Helmet Hard Oil.....25%

Griddles, Soapstone—
Pike Mfg. Co.....33⅓@33⅓&10%

Grindstones—
Bicycle Emery Grinder.....$6.50
Bicycle Grindstones, each.....$2.50@3.00
Pike Mfg. Co.:
Improved Family Grindstones, per inch, ℔ doz.....$2.00 } 33⅓%
Pike Mower and Tool Grinder, each .....$6.00 }

Grips, Nipple—
Perfect Nipple Grips.....40&10&2%

Halters and Ties—
Cow Ties.....60&10@60&10&5%
Covert Mfg. Co.:
Web 45%
Jute Rope.....45%
Sisal Rope.....33⅓%
Cotton Rope.....45%
Hemp Rope.....45%
Oneida Community:
Am. Coil and Halters.....40@40&5%
Am. Cow Ties.....45@50%
Niagara Coil and Halters..45@50&5%
Niagara Cow Ties....45&5@50&10&5%

Hammers—
Handled Hammers—
Heller's Machinists'...40&10@40&10&10%
Heller's Farriers.....40&10@40&10&10%
Magnetic Tack, Nos. 1, 2, 3, $1.25, $1.50, $1.75.....50%
Peck, Stow & Wilcox, Steel.....50%
Fayette R. Plumb:
Plumb, A. E. Nail.....33⅓&7½@33⅓&10&7½%
Engineers' and B. S. Hand.....50&7½&5@50&10&7½&5%
Machinists' Hammers.50&5@50&10&5%
Riveting and Tinners'.....40&2½@40&10&2½%

Heavy Hammers and Sledges—
Under 3 lb., per lb., 50¢...80&10%
3 to 5 lb., per lb., 40¢...80&10%
Over 5 lb., per lb., 30¢..80&10&10%
Wilkinson's Smiths'...lb. 9½@10¢

Handles—
Agricultural Tool Handles
Axe, Pick, &c....60&10@60&10&5%
Hoe, Rake, &c.....45@50%
Fork, Shovel, Spade, &c.:
Long Handles.....45@50%
D Handles.....50@50&5%

Cross-Cut Saw Handles—
Atkins' 40%
Champion 50%
Disston's 50%

Mechanics' Tool Handles—
Auger, assorted...gro. $2.50@3.00
Brad Awl.....gro. $1.65@1.75
Chisel Handles, Ass'd, per gro.:
Tanged Firmer, Apple, $2.40@ $2.65; Hickory.....$2.15@2.40
Socket Firming, Apple, $1.75@ $1.95; Hickory.....$1.45@$1.60
Socket Framing, Hickory, $1.60@$1.75
File, assorted.....gro. $1.30@$1.40
Hammer, Hatchet, &c. 60¢&10@60&10&5%
Hand Saw, Varnished, doz. 80&85¢; Not Varnished...65@75¢
Plane Handles:
Jack, doz. 30¢; Jack, Bolted.75¢
Fore, doz. 45¢; Fore, Bolted.90¢
Chapin-Stephens Co.:
Carving Tool.....40@40&10%
Chisel .....65@65&10%
File and Awl.....65@65&10%
Saw and Plane.....40@40&10%
Screw Driver.....40@40&10%
Millers Falls Adj. and Ratchet Auger Handles .....15&10%
Nicholson Simplicity File Handle.... ℔ gro. $0.85@$1.50

Hangers—
NOTE.—Barn Door Hangers are generally quoted per pair, without track, and Parlor Door Hangers per double set with track, &c.
Allith Mfg. Co.:
Reliable, No. 1; Allith, No. 3; Allith Adjustable, No. 6; Reliable Parlor Door.....50%
Chicago Spring Butt Co.:
Friction 75%
Oscillating 25%
Big Twin.....25%
Chisholm & Moore Mfg. Co.:
Baggage Car Door.....50%
Elevator 30%
Railroad 50%
Cronk & Carrier Mfg. Co.:
Loose Axle.....60&10%
Roller Bearing.....70%
Griffin Mfg. Co.:
Solid Axle, No. 10, $12.00.....70%
Roller Bearing, No. 11, $15.00.70%
Roller Bearing, Ex. Hy., No. 22, $18.00.....70%
Hinged Hangers, $16.00....60&10%
Lane Bros. Co.:
Parlor, Ball Bearing, $4.00; Standard, $3.15; No. 105, $2.85; New Model, $2.80; New Champion $2.25
Barn Door, Standard.....60&5%
Hinged.....net $6.40
Covered .....60&2%
Special .....70&5%
Lawrence Bros.:
Advance and Sterling.....60&10%
Cleveland and Peerless.....75%
Clipper, No. 75.....60%
Crown .....60&10%
Easy Parlor Door, Dbl. Sets, $2.50; Single Sets, $1.25.
Giant .....60&5%
Hummer .....70&5%
New York.....60&10%
McKinney Mfg. Co.:
No. 1, Special, $15.....60&10%
No. 2, Standard, $18.....60&10%
Hinged Hangers, $16.....50%
Meyers' Stayon Hangers.....60&5%
Richards Mfg. Co.:
Hangers, Nos. 47, 48, 147, 247, 60&5%
Pioneer Wood Track No. 3..$2.00
Ball B'r'g St'l Track No. 10.50&10%
Roller B'r'g St'l Track No. 12.$2.15
Roller B'r'g St'l Track No. 13.$2.30
Roller B'r'g, Nos. 39, 41, 43, 70&10%
Hero, Adj. Track No. 19..50&10%
Adjustable Track Tandem Trolley Track No. 16.....50&10%
Seal, Steel Track No. 8...$2.25
Auto Adj. Track No. 22..50&10%
Trolley B. D. No. 17, $1.25; F. D. No. 120, $2.10; No. 121, $2.25; No. 150.....$2.35
Safety Underwriters F. D. No. 101 .....50%
Tandem No. 44..2½ and 3 60&10%
Palace, Adjustable Track No. 132 .....50&10%
Royal, Adjustable Track No. 122 .....50&10%
Ives' Wood Track No. 1.....$2.00
Trolley B. D. No. 20.....50&10%
Trolley B. D. No. 24, $1.30; No. 27, $1.40; No. 28.....$1.60
Roller Bearings, Nos. 37, 38, 39, 41, 43; 44, Sizes 1 and 2..70&10%
Anti-friction, No. 42; No. 44, sizes 2½ and 3.....60&10%
Hinged Tandem No. 48....60&5%
Folding Door B. B. Swivel No. 135 .....40%
Stowell Mfg. & Foundry Co.:
Acme Parlor Ball Bearing....40%
Ajax Hinge Door.....60%
Apex Parlor Door.....50&10&5%
Atlas, 60%; Freight Car Door.60%
Baggage Car Door.....50%
Climax Anti-Friction.....50&10%
Elevator 40%
Express 50%
Interstate .....60&10%
Lundy Parlor Door.....50&10%
Magic, 60%; Rex Hinge Door.60%
Matchless .....60&10%
Nansen .....70&5%
Parlor Door, 50&10%; Railroad, 50&10%
Street Car Door.....50%
Steel, Nos. 300, 404, 500....50&10%
Underwriters' Fire Door.....40%
Wild West Warehouse Door..50%
Zenith for Wood Track....50&10%
A. L. Sweet Iron Works:
Check Back, 70%; Eagle.....70%
Climax Anti-Friction.....50&10%
Hylo Hinge, New Perfection, Pilot, Pilot Hinge.....60%
Rider Wooster.....65%
Western Pattern.....70%
Taylor & Boggis F'y Co.'s Kidder's Roller Bearing.50&15&10&5%

Extra 50&10% often given.

Hangers— Garment—
Pullman Trouser, ℔ gro., 1 pair Flat Aluminoy, $9.00; 1 pair Round Nickeled, $9.00; 4 pair Round Nickeled, $27.00; 1 pair Flat Gun Metal, $12.00; 1 pair Flat Black Enameled, $7.50; 1 pair Wood Clamp, $13.00; Skirt Hangers, Folding, per gro., $21.00; Coat Hangers, Folding, per gro., $8.00; Garment Hanger Rods, Round Nickeled, per gro., $15.00; Garment Hanger Loops, Round Nickeled, per gro.....$15.00
Victor Folding.....℔ gro. $9.60
Western, W. G. Co.....70&10%

Gate—
Myers' Patent Gate Hangers, ℔ doz. net $4.50

Joist and Timber—
Lane Bros. Co.....30%

Hasps—
Griffin's Security Hasp.....50%
McKinney's Perfect Hasp, ℔ doz..50%

Hatchets—
Regular list, first quality....50%
Second quality $1.00 per doz. less than first quality.

Heaters, Carriage—
Clark, No. 5, $1.75; No. 5B, $2.00; No. 3, $2.25; No. 3D, $2.75; No. 7D, $3.00; No. 9E, $3.25; No. 1, $3.50.....15%
Clark Coal, ℔ doz. $0.75.....10%

Hinges—
Blind and Shutter Hinges—
Surface Gravity Locking Blind: (Victor; National; 1868 O. P.; Niagara; Clark's O. P.; Clark's Tip; Buffalo.)

No.	*1*	*3*	*5*
Doz. pair	*$0.75*	*1.35*	*2.70*

Mortise Shutter: (L. & P., O. S., Dixie, &c.)

No.	*1*	*1½*	*2*	*2½*
Doz. pair	*$0.70*	*.65*	*.60*	*.55*

Mortise Reversible Shutter (Buffalo, &c.):

No.	*1*	*1½*	*2*
Doz. pair	*$0.70*	*.65*	*.60*

North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50.....10%
Charles Parker Co.....70@75%
Parker Wire Goods Co.:
Hale & Benjamin Automatic Blind Hinges 20%
Hale's Blind Awning Hinges, No. 110, for wood, $9.00; No. 111, for brick, $9.00.....20%
Reading's Gravity.....60%
Stanley's Steel Gravity Blind Hinges, ℔ doz. sets, without screws, $0.90; with screws, $1.20.
Wrightsville Hardware Co.:
O. S., Lull & Porter.....75&10&5%
Acme, Lull & Porter.....75&10%
Queen City Reversible.....75&10%
Shepard's Noiseless, Nos. 60, 65, 55 .....75&10%
Niagara, Gravity Locking, Nos. 1, 3 & 5.....75&10&5%
1868, Old Pat'n, Nos. 1, 3 & 5.... 75&10&5%
Tip Pat'n, Nos. 1, 3 & 5....75&10&5%
Buffalo, Gravity Lockir Nos. 1, 3 & 5.....75&10&5%
Shepard's Double Locking, Nos. 20 & 25.....70%
Champion Gravity Locking, No. 75.75%
Steamboat Gravity Locking, No. 10.75%
Pioneer, Nos. 060, 45 & 5½.....75%
Empire, Nos. 101 & 103.....70%
W. H. Co.'s Mortise Gravity Locking, No. 2.....60%

Gate Hinges—
Clark's or Shepard's—Doz. sets:

No.	*1*	*2*	*3*
Hinges with L't'chs.	*$2.00*	*2.70*	*5.00*
Hinges only	*1.40*	*2.05*	*3.80*
Latches only	*.70*	*.70*	*.35*

New England:
With Latch.....doz. ....@$2.00
Without Latch...doz. ....@$1.60
Reversible Self-Closing:
With Latch.....doz. ....@$1.75
Without Latch...doz. ....@$1.35
Western:
With Latch.....doz. $1.75
Without Latch.....doz. $1.15
Wrightsville Hardware Co.:
Shepard's or Clark's, doz. sets.

No.	1	2	3
Hinges with Latches..	$2.00	2.70	5.00
Hinges only	1.40	2.05	3.80
Latches only	.70	.70	1.35

Pivot Hinges
Bommer Bros. Pivot.....40%
Lawson Mfg. Co. Matchless.....45%

Spring Hinges—
Holdback, Cast Iron...$6.50@$7.00
Non-Holdback, Cast Iron$6.25@$6.75
J. Bardsley:
Bardsley's Non-Checking Mortise Floor Hinges.....45%
Bardsley's Patent Checking..15%
Bommer Bros.:
Bommer Ball Bearing Floor..40%
Bommer Spring Hinges.....40%
No. 999 Wrot, Steel Hold Back, ℔ gr. $9.00
Chicago Spring Butt Co.:
Chicago Spring Hinges.....25%
Triple End Spring Hinges....50%
Chicago (Ball Bearing) Floor..50%
Garden City Engine House....25%
Keene's Saloon Door.....25%
Columbian Hardware Co.:
Acme, Wrought Steel.....30%
Acme, Brass.....25%
American 30%
Columbia, ℔ gr., No. 14, $9.00; No. 18, $25.00
Columbia, Adj., No. 7, ℔ gr. $12.00
Gem, new list.....30%
Clover Leaf.....℔ gr. $12.00
Oxford, new list.....30%
Floor Spring Hinges.....65&10%
Lawson Mfg. Co., Matchless....30%
Richards Mfg. Co.:
Superior Double Acting Floor Hinges 40%
Shelby Spring Hinge Co.:
Buckeye All Steel Holdback Screen Door.....℔ gr. $9.00
Ball Bearing Floor Hinge....50%
Ohio Detachable Screen Door Hinge .....℔ gr. $12.00
Superior Spring Hinge Co.:
Superior Floor Hinges.....33⅓%
The Stover Mfg. Co.:
Ideal, No. 18, Detachable, ℔ gr. $12.50
Ideal, No. 4.....℔ gr. $9.00
New Idea, No. 1.....℔ gr. $9.00
New Idea, Double Acting....45%
New Idea, Floor.....45%
Van Wagoner:
Ball Bearing.....25%
No. 777 Sh't Steel Holdb'k.℔ gro. pr $9

Extra 10% often given on most of these Hinges.

Wrought Iron Hinges—
Strap and T Hinges, &c., list December 20, 1904:
Light Strap Hinges..65% } *Extra, 10&5@ 10&10%*
Heavy Strap Hinges..75% }
Light T Hinges.....60% }
Heavy T Hinges.....55% }
Extra H'y T Hinges..70% }
Hinge Hasps.....45% }
Cor. Heavy Strap....75% }
Cor. Ex. Heavy T..70&10% }

Screw Hook and Strap. { *6 to 12 in.* .lb. 3¾¢ ; *1¼ to 20 in.* .lb. 3½¢ ; *22 to 36 in.* .lb. 3¼¢

Screw Hook and Eye:
¾ to 1 inch.....lb. 6½¢
⅝-inch.....lb. 7½¢
½-inch.....lb. 8½¢

Hitchers, Stall—
Covert Mfg. Co., Stall Hitchers..30&2%

Hods— Coal—

	Per doz.			
Inch	15	16	17	18
Galv. Open	$2.50	2.75	3.00	3.25
Jap. Open	$1.90	2.10	2.25	2.55
Galv. Funnel	$3.00	3.30	3.60	3.90
Jap. Funnel	$2.45	2.65	2.85	3.30

Masons' Etc.—
Cleveland Wire Spring Co.:
Steel Brick, No. 162.....each $0.95
Steel Mortar, No. 158.....each $1.25

Hoes— Eye—
Scovil and Oval Pattern.....
60&10@60&10&10%
Grub, list Feb. 23, 1899.....
70&10@75&10%
D. & H. Scovil.....30%

Handled—
NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.
Cronk's Weeding No. 1, $2.00; No. 2, $1.25
Ft. Madison Cotton Hoe....70&10&10%
Ft. Madison Crescent Cultivator Hoe, ℔ doz.....70&10%
Ft. Madison Mattock Hoes:
Regular Weight.....℔ doz. 66⅔%
Junior Size.....℔ doz. $4.00
Ft. Madison Sprouting Hoe..℔ doz. 50%
Ft. Madison Dixie Tobacco Hoe.....
75&10&7½%
Kretsinger's Cut Easy.....70&10%
Warren Hoe.....45&10%
W. & C. Ivanhoe.....75&2%
B. B. 6 in., Cultivator Hoe.....$3.15
B. B., 6½ in.....$3.35
Acme Wedding.....℔ doz., net, $4.35
W. & C. L'ning Shuffle Hoe,℔doz.$4.85

Hoisting Apparatus—
See *Machines, Hoisting.*

Holders— Bit—
Angular, ℔ doz. $24.00.....45&10%

Door—
Bardsley's.....45%
Empire.....50%
Pullman.....50%
Superior.....33⅓%

File and Tool—
Nicholson File Holders and File Handles.....33⅓@40%

Fruit Jar—
Triumph Fruit Jar Holder, ℔ gross, $10.80; ℔ doz.....$1.25

Hones—Razor—
Pike Mfg. Co., Belgian, German and Swaty.....50%

Hooks—Cast Iron—
Bird Cage, Reading.....40%
Clothes Line, Reading List.....40%
Clothes Line, Stowell's.....70%
Coat and Hat, Reading.....45&20%
Coat and Hat, Stowell's.....70%
Coat and Hat, Wrightsville.....65%
Harness, Reading List.....40%
Harness, Stowell's.....60%
School House, Stowell's.....70%

Wire—
Belt.....80&10@..%
Wire C. & H. Hooks:.....
75&10@75&10&10%
Columbian Hdw Co., Gem.....70&10%
Parker Wire Goods Co., King..70&10%
Van Wagoner, Coat and Hat.....70%
Western W. G. Co. Molding.....75%
Wire Goods Co.:
Acme, 60&10%; Chief, 70%; Crown, 75%; Czar, 65%; V Brace, 75%; Czar Harness, 50&10%.

Wrought Iron—
Box, 6 in., per doz., $1.00; 8 in., $1.25; 10 in., $2.50.
Cotton.....*doz. $1.05@$1.25*
Wrought Staples, Hooks, &c.—
See Wrought Goods

Miscellaneous—
Hooks, Bench, see *Stops, Bench.*
Bush, Light, doz. $4.75; Medium, $5.35; Heavy, $6.25
Grass, best, all sizes, per doz.$1.60
Grass, common grades, all sizes, per doz.....*$1.30*
Whiffletree.....*lb. 5¾@6¢*
Hooks and Eyes:
Brass.....60&5@60&10&5%
Malleable Iron.....70@70&10%
Covert Mfg. Co., Gate and Scuttle Hooks.....40%
Ft. Madison Cut-Easy Corn Hooks, ℔ doz. $3.25 net
Bench Hooks—See Bench Stops.
Corn Hooks—See Knives, Corn.

Horse Nails—
See *Nails, Horse.*

Horseshoes—
See *Shoes, Horses.*

Hose, Rubber—
Garden Hose, ¾-inch:
Competition.....*ft. 5 @ 6 ¢*
3-ply Guaranteed..*ft. 8 @ 9 ¢*
4-ply Guaranteed..*ft. 10 @11 ¢*
Cotton Garden, ¾-in., coupled:
Low Grade.....*ft. 8 @ 9 ¢*
Fair Quality.....*ft. 10 @11 ¢*

Irons— Sad—
From 4 to 10.....*lb. 3 @3¼¢*
B. B. Sad Irons.....*lb. 3¼@3½¢*
Mrs. Potts', cents per set:

	Nos. 50	55	60	65
Jap'd Tops	65	62	75	72
Tin'd Tops	70	67	80	77

New England Pressing..*lb. 3¾@4¢*

Pinking—
Pinking Irons.....*doz.60¢*

Irons, Soldering
See *Coppers.*

Jacks, Wagon—
Covert Mfg. Co.:
Auto Screw.....30&2%; Steel, 45%
Lockport.....50%
Lane's Steel.....30&10&2%
Richards' Tiger Steel, No. 130...50&10%
Smith & Hemenway Co.'s.....25%

Kettles—
Brass, Spun, Plain.....20@25%
Enameled and Cast Iron—See Ware, Hollow.

Knives—

Butcher, Kitchen, &c.—
Foster Bros.' Butcher, &c.....30%
Wilkinson Shear & Cutlery Co.....60%

Corn—
Wilkinson Wilcut Brand Knives and Hooks.....60%
Withington Acme, ℔ doz., $2.65; Dent, $2.75; Adj. Serrated, $2.20; Serrated, $2.10; Yankee No. 1, $1.50; Yankee No. 2, $1.15.

Drawing—
Standard List.....75&5@75&10%
C. E. Jennings & Co., Nos. 45, 46..60%
Jennings & Griffin, Nos. 41, 42.....60%
Swan's.....75%
Watrous.....16⅔%
L. & I. J. White.....20&5@25%

Hay and Straw—
Serrated Edge, per doz.$5.75@6.00
Iwan's Sickle Edge.....℔ doz. $9.50
Iwan's Serrated.....℔ doz. $10.00

Mincing—
Buffalo.....℔ gro. $13.00

Miscellaneous—
Farriers'.....*doz. $3.00@3.25*
Wostenholm's.....℔ doz. $3.00@3.25

Knobs—
Base, 2½-inch, Birch, or Maple, Rubber Tip.....*gro.$1.25@$1.40*
Carriage, Jap., all sizes.....
gro. 40@45¢
Door, Mineral.....*doz. 65@70¢*
Door, Por. Jap'd.....*doz. 70@75¢*
Door, Por. Nickel..*doz. $2.05@2.15*
Bardsley's Wood Door, Shutters, &c.15%

Lacing, Leather—
See *Belting, Leather—*

Ladders, Store, &c.—
Allith Mfg. Co., Reliable.....50%
Lane's Store.....25%
Myers' Noiseless Store Ladders....50%
Richards Mfg. Co.:
Improved Noiseless, No. 112.....50%
Climax Shelf, No. 113.....50%
Trolley, No. 109.....50%

Ladles, Melting—
L. & G. Mfg. Co. (low list).....25%
P. S. & W.....50%
Reading.....50%

Lanterns—Tubular—
Regular Tubular, No. 0.....
doz.$4.25@4.50
Lift Tubular, No. 0.....
doz.$4.75@5.00
Hinge Tubular, No. 0.....
doz.$4.75@5.00
Other Styles.....*40@40&5%*

Bull's Eye Police—
No. 1, 2¾-inch.....*$2.75@3.00*
No. 2, 3-inch.....*$3.00@3.25*

Lasts and Stands, Shoe—
Stowell's Atlas, Malleable Iron.....50%
Stowell's Badger, Cast Iron.....50%

Latches— Thumb—
Roggin's Latches, with screw..
doz. 35@40¢

Door—
Allith Mfg. Co., Automatic, No. 400, ℔ doz.....$4.00
Cronk & Carrier Mfg. Co., No. 101, ℔ doz. $2.90
Cronk & Carrier Mfg. Co., Latch, Hasp and Staples.....50%
Richards' Bull Dog, Heavy, No. 125.....50&5%
Richards' Trump, No. 127.....$1.50
Stowell's Steel.....50%

Leaders, Cattle—
Small.....*doz. 50¢; large, 60¢*
Covert Mfg. Co.:
Cotton, Hemp and Jute, 45%; Sisal, 33⅓%.

Lifters, Transom—
R. & E.....33⅓%

Lines—
Wire Clothes, Nos. 18 19 20
100 feet.....*$2.25 2.00 1.75*
75 feet.....*$1.75 1.55 1.10*
Anniston Waterproof Clothes, 50 ft. ℔ gro., $25.00; Gilt Edge, $23.00; Air Line, $23.00; Acme, $18.00; Alabama, $17.00; Empire, $16.00; Advance, $14.00; Eclipse, $13.50; Chicago, $11.50; Standard, $10.50; Columbia, $9.50; Allston, $13.50; Calhoun, $12.00.
Samson Cordage Works:
Solid Braided Chalk, Nos. 0 to 3..40%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50.....℔ gr. 20%
Masons' Lines, Shade Cord, &c.:
White Cotton, No. 3½, $1.50; No. 4, $2.00; No. 4½, $2.50; Colors, No. 3½, $1.75; No. 4, $2.25; No. 4½, $2.75; Linen, No. 3½, $2.50; No. 4, $3.50; No. 4½, $4.50.....20%
Tent and Awning Lines: No. 5, White Cotton, $7.50; Drab Cotton, $8.50.....20%
Clothes Lines, White Cotton: 50 ft., $2.75; 60 ft., $3.25; 70 ft., $3.75; 75 ft., $4.00; 80 ft., $4.25; 90 ft., $4.75; 100 ft., $5.25.....20%

Locks— Cabinet—
Cabinet Locks...33⅓@33⅓&7½%

Door Locks, Latches, &c.—
NOTE.—Net Prices are very often made on these goods.
Reading Hardware Co.....40%
R. & E. Mfg. Co.....40%

Elevator—
Stowell's.....50%

Padlocks—
Wrought Iron....75&10&5@80&5%
Net prices are general.
R. & E. Mfg. Co. Wrought Steel and Brass.....75&10%

Sash, &c.—
Ives' Patent:
Bronze and Brass, 60%; Crescent, 40&20%; Iron, 60%; Window Ventilating, 55%; Robinson Pat. Ventilating Sash Lock, 33⅓%; Wrought Bronze and Brass, 55%; Wrought Steel, 55%.
Pullman Patent Ventilating Lock..25%
Reading.....40%

Machines—Boring—
Com. Upr't, without Augers,
$2.00@2.25
Com. Angl'r, without Augers,
$2.25@2.50
Swan's Improved.....40&10%
Angular.
Jennings', Nos. 1 and 4.....35&5%
Millers' Falls.....5.75
Snell's, Rice's Pat. 2.50 2.75

Corking—
Reisinger Invincible Hand Power....
℔ doz. $48.00

Fence—
Williams' Fence Machines....each, $5.50

Hoisting—
Moore's Anti-Friction Differential Pulley Block.....30%
Moore's Hand Hoist, with Lock Brake.....20%

Ice Cutting—
Chandler's.....12½%

Washing—

Boss Washing Machine Co.:	Per doz.
Boss No. 1	$57.00
Boss Rotary	$54.00
Champion Rotary Banner No. 1	$54.00
Standard Champion No. 1	$48.00
Standard Perfection	$26.00
Cinti Square Western	$30.00
Uneeda American, Round	$30.00

Mallets—
Hickory.....*45&5@50%*
Lignumvitæ.....*45&5@50%*
Tinners' Hickory and Applewood.....*doz. 45&5@50%*

Mangers, Stable—
Swett Iron Works.....50%

Mashers, Vegetable—
Western, W. G. Co., Potato....60&10%

Mats, Door—
Elastic Steel (W. G. Co.), new list..
50&10%
Keystone Wire Matting Co.:
Keystone.....50%
Ideal.....50%

Mattocks—
See *Picks and Mattocks.*

Milk Cans—See *Cans, Milk.*

Mills, Coffee, &c.—
Enterprise Mfg. Co.....20@25%
National list Jan. 1, 1902.....30%
Parker's Columbia & Victoria..50&10@60%
Parker's Box and Side.....60&10@60%
Swift, Lane Bros. Co.....30%

Mowers, Lawn—
NOTE.—Net prices are generally quoted
Cheapest.....*all sizes, $1.85@2.00*
Cheap.....*all sizes, $2.00@2.50*
Better Grade..*all sizes, $2.50@4.50*

	12	14	16	18-in.
High Grade	$4.50	4.75	5.00	5.25

Continental.....60&5%
Great American.....70%
Great American Ball B'r'g, new list.70%
Quaker City.....70%
Pennsylvania.....60&5%
Pennsylvania, Jr., Ball Bearing....60%
Pennsylvania Golf.....50%
Pennsylvania Horse.....33⅓&5%
Pennsylvania Pony.....40&5%
Granite State:
Style A, Low Wheel....70&10&10&5%
Style B, Low Wheel.....70&10&5%
Style C, High Wheel.....70&10%
Style D, High Wheel.....70%
Philadelphia:
Styles M, S, C, K, T.....70&5%
Style A, all Steel.....60&5%
Style E, High Wheel.....70&10&5%
Drexel and Gold Coin, special list.50%

Nails—
Wire Nails and Brads, Miscellaneous.....*85&10@85&10&5%*
Cut and Wire, See *Trade Report.*
Hungarian, Finishing, Upholsterers' &c. See *Tacks.*

Horse—

Nos.	6	7	8	9	10	
Anchor	23	21	20	19	18	...40&5%
Champlain	28	26	25	24	23	.....50%
Coleman	13	12	12	11	11	.....net
New Haven	23	21	20	19	18	...40&5%
Western						℔ lb 8½¢

Jobbers' Special Brands.....
per lb. 9@10¢

Picture—

	1½	2	2½	3	4in.	
Brass H'd.	.45	.55	.60	.70	..	*gro*
Por. Head.:	1.10	1.10	1.10	..	..	*gro*

Nippers—
See *Pliers and Nippers.*

Nuts—
Cold Punched: *Off list.*
Square, Blank or Tapped..
4.80@4.90¢
Hexagon, Blank or Tapped..
5.20@5.30¢
Square, Blank, C. & T.5.10@5.20¢
Hexagon, Blank, C. & T..
5.80@5.90¢
Hot Pressed:
Square, Blank.....*5.00@5.10¢*
Hexagon, Blank.....*5.40@5.50¢*
Square, Tapped.....*4.90@5.00¢*
Hexagon, Tapped....*5.30@5.40¢*

Oakum—
Best.....*lb., 6½¢*
U. S. Navy.....*lb., 6¢*
Navy.....*lb., 5¢*
Plumbers' Spun Oakum.....*8¾¢*
In carload lots ½¢ lb. off, f.o.b. New York.

Oil Tanks—See *Tanks, Oil.*

Oilers—
Brass and Copper.....*50&10%*
Tin or Steel.....*65&10&5@70%*
Zinc.....*65&10&5@70%*
Chase or Paragon:
Brass and Copper.....*50&10%*
Tin or Steel.....*65&10%*
Zinc.....*65&10%*
Malleable, Hammers' Imp'ed, Nos. 11, 12 and 13, 20%; Old Pattern, Nos. 1, 2, 3, 50%.
American Tube & Stamping Co.:
Spring Bottom Cans.....70@70&10%
Railroad Oilers, &c.....60@60&10%

Openers— Can— *Per doz.*
Sprague, Iron Handle....*.30@35¢*
Sprague, Wood Handle..*35@40¢*
Sardine Scissors.....*$1.75@$3.00*
National.....50&10%
Stowell's Sprague.....℔ doz. 35@45¢
Vim Tin Shear and Can Opener, ℔ doz., 75c.; per gro., $7.50

Egg—
Nickel Plate, ℔ doz., $2.00; Silver Plate, $4.00.

Packing—
Asbestos Packing, Wick and Rope.....*17@22¢*

Rubber—
(*Fair quality goods.*)
Sheet, C. I.....*11@12¢*
Sheet, C. O. S.....*11@12¢*
Sheet, C. B. S.....*12@13¢*
Sheet, Pure Gum.....*40@45¢*
Sheet, Red.....*40@50¢*
Jenkins' '96, ℔ lb 80¢.....25@25&5%

Miscellaneous—
American Packing...*lb. 7@10 ¢*
Cotton Packing.....*lb. 16@25 ¢*
Italian Packing.....*lb. 9@12½¢*
Jute.....*lb. 4@ 4½¢*
Russia Packing.....*lb. 8@11 ¢*

Pails, Creamery—
R. M. Co., with gauges—No. 1, $6.25; No. 2, $6.50 ℔ doz.

Pails, Water, Well, &c.—
See *Buckets.*

Pans— Dripping—
Standard List.....*65&10%*

Fry—
Common Lipped:

Nos.	1	2	3	4	5
Per doz	$0.75	0.80	0.90	1.10	1.30

Refrigerator, Galva.—

Inch	12	14	16	18
Per doz	$1.75	2.25	2.80	3.15

Roasting and Baking—
Regal, R. M. Co., ℔ doz., Nos. 5, $4.50; 10, $5.25; 20, $5.75; 30, $6.25.
Savory, ℔ doz., net, Nos. 200, $9.00; 400, $15.00.
Simplex, ℔ gro.:

No.	40	50	60	140	150	160
	$30.00	35.00	42.00	34.00	39.00	46.00

Paper—Building Paper

Asbestos:	*lb.*	
Roll Board or Building Felt, 6 to 30 lb., per 100 sq. ft.	*6¢*	Ready Roofing
Roll Board or Building Felt, 3-32 and ⅛ in., 45 to 60 lbs., per 100 sq. ft.	*8¢*	
Mill Board, Sheet, 40 x 40 in., 1-32 to ½ in.	*7¢*	

Per roll
Rosin Sized Sheathing: 500 sq. ft.
Light weight, 25 lbs. to roll
40@50¢
Medium weight, 30 lbs. to roll.
50@55¢
Heavy weight, 40 lbs. to roll..
65@70¢
Black Water Proof Sheathing. 500 sq. ft., 1 ply, 65¢ ; 2 ply, 85¢ ; 3 ply, $1.10 ; 4 ply, $1.25.
Deafening Felt, 9, 6 and 4½ sq. ft. to lb. ton.....*$50.00*
Red Rope Roofing, 250 sq. ft. per roll.....*$1.75*

Tarred Paper—
1 ply (roll 400 sq. ft.), ton.....
$31.00@$35.00
2 ply, roll 108 sq. ft.....*57¢*
3 ply, roll 108 sq. ft.....*80¢*
Slater's Felt (roll 500 sq. ft.).76¢

Sand and Emery—
Flint Paper and Cloth.50&10@—%
Garnet Paper and Cloth....*25%*
Emery Paper and Cl'th..50&10@60%

Parers— Apple—
Advance.....℔ doz. $4.00
Baldwin.....℔ doz. $4.00
Bonanza Improved.....each $6.50
Daisy.....℔ doz. $4.00
Dandy.....each $7.50
Eureka Improved.....each $20.00
Family Bay State.....℔ doz. $15.00
Improved Bay State.....℔ doz. $36.00
Little Star.....℔ doz. $5.00
New Lightning.....℔ doz. $7.00
Reading 72.....℔ doz. $3.25

Reading ,8.....per doz. $6.25
Rocking Table.....per doz. $6.20
Turn Table '98.....per doz. $6.00
White Mountain.....per doz. $5.00

Potato—

Saratoga.....per doz. $7.00
White Mountain.....per doz. $6.00

Picks and Mattocks—

List, Feb. 23, 1899.....75@75&5%
Cronk's Handled Garden Ma[illegible] z., per doz., $6.40.....33⅓%

Pinking Irons—

See *Irons, Pinking.*

Pins, Escutcheon—

Brass.....50&10@60%
Iron, list Nov. 11, '85..60@60&10%

Pipe, Cast Iron Soil—

Carload lots.
Standard, 2-6 in..50&10@50&10&5%
Extra Heavy, 2-6 in......65&10%
Fittings.....70&10@70&10&5%

Pipe, Merchant—

	Consumers, Carloads.			
	Steel.		*Iron.*	
	Blk.	*Galv.*	*Blk.*	*Galv.*
⅛ & ¼ in.	71%	55%	68%	52%
⅜ in.	73%	59%	70%	56%
½ in.	73%	63%	72%	60%
¾ to 6 in.	79%	69%	76½%	66¼%
7 to 12 in.	74%	59%	71½%	56%

Pipe, Vitrified Sewer—

Carload lots.
Standard Pipe and Fittings, 3 to 24 in., f.o.b. factory:
First-class.....85@86%
Second-class.....90%
NOTE.—Market irregular.

Pipe, Stove—

Edwards' Nested:	C. L.	L. C. L.
5 in., per 100 joints	$7.00	$8.00
6 in., per 100 joints	7.50	8.50
7 in., per 100 joints	8.50	9.50

Planes and Plane Irons—

Wood Planes—

Bench, first qual......35@35&10%
Bench, second qual...45@45&10%
Molding.....30@30&10%
Bailey's (Stanley R. & L. Co.).....40%
Chapin-Stephens Co.:
Bench, First Quality.....35%
Bench, Second Quality.....45%
Molding and Miscellaneous.....30%
Toy and German.....35%
Chaplin's.....60%
Unicn.....60%

Iron Planes—

Bailey's (Stanley R. & L. Co.).....40%
Chaplin's Iron Planes.....50&10%
Miscellaneous Planes (Stanley R. & L. Co.).....35%
Union.....60%

Plane Irons—

Wood Bench Plane Irons.... 25@25&10%
Buck Bros.....30%
Chapin-Stephens Co.....25%
Stanley R. & L. Co.....35%
Union.....50%
L. & I. J. White.....20&5@25%

Planters, Corn, Hand—

Kohler's Eclipse.....per doz. $8.50

Plates—

Felloe.....lb. 4@4¼¢
Self-Sealing Pie Plates (R. M. Co.), per doz. $2.00.....50%

Pliers and Nippers—

Button Pliers....75&10@75, 10, 5%
Gas Burner, per doz., 5 in., $1.25 @ $1.30; 6 in., $1.45 @ $1.50.
Gas Pipe.. 7 8 10 12-in.
$2.00 $2.25 $2.75 $3.50
Acme Nippers.....50&5%
Cronk & Carrier Mfg. Co.:
American Button.....75&10%
Cronk's.....60%
Stub's Pattern.....50%
Combination and others.....33⅓%
Heller's Farriers' Nippers, Pincers and Tools.....40&10@40&10&10%
The Nettleton Mfg. Co. Reversible Cutting Nippers.....40%
P., S. & W. Tinners' Cutting Nippers.....40%
Wm. Schollhorn Co.:
Bernard, 33⅓%; Elm City, 33⅓%; Lodi, 50%; Paragon, 50%.
Swedish Side, End and Diagonal Cutting Pliers.....50%
Utica Drop Forge & Tool Co.:
Pliers and Nippers, all kinds.....40%

Plumbs and Levels—

Chapin-Stéphens Co.:
Plumbs and Levels.....30@30&10&5%
Chapin's Imp. Brass Cor..40@40&10%
Pocket Levels.....30@30&10&5%
Extension Sights.....30@30&10&5%
Machinists' Levels.....40@40&10%
Disston's Plumbs and Levels.....67½%
Disston's Pocket Levels.....67½%
C. E. Jennings & Co.'s Iron.....33⅓%
C. E. Jennings & Co.'s Iron, Adjustable.....40&7½%
Stanley R. & L. Co.....45%
Stanley's Duplex.....35%
Woods' Extension.....33⅓%

Poachers, Egg—

Buffalo Steam Egg Poachers, per doz., No. 1, $6.00; No. 2, $9.00; No. 3, $9.00; No. 4, $12.00.....50%

Points, Glaziers'—

Bulk and 1-lb. papers,....lb. 10¢
½-lb. papers.....lb. 9@10¼¢
¼-lb. papers.....lb. 9¾@11¢

Pokes, Animal—

Ft. Madison Hawkeye.....per doz. $3.25
Ft. Madison Western.....per doz. $4.00

Police Goods—

Manufacturers' Lists...25@25&5%
Tower's.....25%

Polish—Metal, Etc—

Glasbrite, No. 2, 5 lb can (powder), each, $1.25; per doz., $12.00; No. 2, 10 lb can (cake), each, $2.50; per doz., $24.00.
Prestoline Liquid, No. 1 (½ pt.), per doz., $3.00; No. 2 (1 qu.), $9.72.....40%
Prestoline Paste.....40%
George William Hoffman:
U. S. Metal Polish Paste, 3 oz. boxes, per doz. 50¢; per gro. $4.50; ½ lb boxes, per doz. $1.25; 1 lb boxes, per doz. $2.25.
U. S. Liquid, 8 oz. cans, per doz., $1.25; per gro., $12.00.
Barkeepers' Friend Metal Polish, per doz., $1.75; per gro., $18.00.
Wynn's White Silk, ½ pt. cans, per doz.....$2.00

Stove—

Black Eagle Benzine Paste, 5 lb cans, per lb 10¢
Black Eagle, Liquid, ⅛ pt. cans, per doz. 75¢
Black Jack Paste, ¾ lb cans, per gr. $9.00
Black Kid Paste, 5 lb can....each, $0.65
Ladd's Black Beauty Liquid, per 100 tins.....$6.75
Joseph Dixon's, per gr. $5.75.....10%
Dixon's Plumbago.....per lb 8¢
Fireside.....per gr. $2.50
Gem, per gr. $1.50.....10%
Japanese.....per gr. $3.50
Jet Black.....per gr. $3.50
Peerless Iron Enamel, 10 oz. cans.....per doz. $1.50
Wynn's:
Black Silk, 5 lb pail.....each 70¢
Black Silk, ½ lb box.....per doz. $1.00
Black Silk, 5 oz. box.....per doz. $0.75
Black Silk, ½ pt. liq.....per doz. $1.00

Poppers, Corn—

1 qt., Square.....gro. $8.00
1 qt., Round.....gro. $9.00
1½ qt., Square.....gro. $10.00
2 qt., Square.....gro. $12.00

Post Hole and Tree Augers and Diggers—

See also *Diggers, Post Hole, &c.*

Posts, Steel—

Steel Fence Posts, each, 5 ft., 42¢; 6 ft., 46¢; 6½ ft., 48¢.
Steel Hitching Posts.....each $1.30

Potato Parers—

See *Parers, Potato.*

Pots, Glue—

Enameled.....40%
Tinned.....35%

Powder—

In Canisters:
Duck, 1 lb.....each 45¢
Fine Sporting, 1 lb....each 75¢
Rifle, ½-lb.....each 15¢
Rifle, 1-lb.....each 25¢
In Kegs:
12½-lb. kegs.....$3.50
25-lb. kegs.....$4.50
King's Semi-Smokeless:
Keg (25 lb bulk).....$6.50
Half Keg (12½ lb bulk).....$3.50
Quarter Keg (6¼ lb bulk).....$1.90
Case 24 (1 lb cans bulk).....$8.50
Half case (1 lb cans bulk).....$4.50

King's Smokeless:	Shot Gun.	Rifle.
Keg (25 lb bulk)	$12.00	$15.00
Half Keg (12½ lb bulk)	6.25	7.75
Quarter Keg (6¼ lb bulk)	3.25	4.00
Case 24 (1 lb cans bulk)	14.00	17.00
Half case 12 (1 lb c. bk)	7.25	8.75

Robin Hood Sm'less Shot Gun..50&20%

Presses—

Fruit and Jelly—

Enterprise Mfg. Co.....20@25%

Seal Presses—

Morrill's No. 1, per doz., $20.00.....50%

Pruning Hooks and Shears

See *Shears.*

Pullers, Nail—

Cyclops.....50%
Miller's Falls, No. 3, per doz., $12.00.....33⅓&10%
Morrill's No. 1, Nail Puller, per doz. $20.00.....50%
Pearson No. 1, Cyclone Spike Puller, each $30.00.....50%
Scranton, Case Lots:
No. 2B (large).....$5.50
No. 3B (small).....$5.00
Smith & Hemenway Co.:
Diamond B, case lots, per doz., No. 2, $6.00; No. 3, $5.50.
Giant No. 1, per doz. $18; No. 2, $16.50; No. 3, $15.....33⅓%
Staple Pullers.....60%
Parrot Tack and Stub Puller, per doz., 75c.; per gro., $6.00

Pulleys, Single Wheel—

Inch	*1½*	*1¾*	*2*	*3*
Awning or Tackle, doz.	*$0.30*	*.45*	*.60*	*1.05*

Hay Fork, Swivel or Solid Eye. doz., ¼ in., $1.25; 5 in., $1.55				
Inch	*2*	*2¼*	*2½*	
Hot House, doz.	*$0.65*	*.85*	*1.20*	
Inch	*1¼*	*1½*	*1¾*	*2*
Screw, doz.	*$0.16*	*.19*	*.25*	*.30*
Inch	*1¾*	*2*	*2¼*	*2½*
Side, doz.	*$0.25*	*.40*	*.55*	*.60*
Inch	*1½*	*1¾*	*2*	*2½*

Stowell's:
Ceiling or End, Anti-Friction..60&10%
Dumb Waiter, Anti-Friction..60&10%
Electric Light.....60%
Side, Anti-Friction.....60&10%

Sash Pulleys—

Common Frame; Square or Round End, per doz, 1¾ and 2 in......18@19¢
Auger Mortise, no Face Plate, per doz., 1¾ and 2 in.....17@19¢
Acme.....1¾ in., 16¢; 2 in., 19¢
Fox-All-Steel, Nos. 3 and 7, 2 in.... per doz. 50%
Grand Rapids All Steel Noiseless..50%
Ideal.....70&10%
Niagara.....1¾ in., 16¢; 2 in., 19¢
No. 26, Troy..1¾ in., 14½¢; 2 in., 16½¢
Star.....1¾ in., 16¢; 2 in., 19¢
Tackle Blocks—See Blocks.

Pumps—

Cistern.....60@60&10%
Pitcher Spout.....80@80&10%
Wood Pumps, Tubing, &c..45@50%
Barnes Dbl. Acting (low list).....50%
Barnes' Pitcher Spout.....75&10&5%
Contractors' Rubber Diaphragm No. 2, B. & L. Block Co.....$16.00
Daisy Spray Pump.....per doz. $6.75
Flint & Walling's, Fast Mail Hand, (low list).....55%
Flint & Walling's Fast Mail (low list).....55&5%
Flint & Walling's Tight Top Pitcher.80%
National Specialty Mfg. Co., Measuring, $6.00.....30%
Mechanical Sprayer.....$6.00
Myers' Pumps (low list).....50%
Myers' Power Pumps.....50%
Myers' Spray Pumps.....50&10%

Pump Leathers—

Plunger and Lower Valve—Per gro.:

Inch...	*2*	*2¼*	*2½*	*2¾*
	$2.20	*2.50*	*2.75*	*3.00*
Inch...	*3*	*3¼*	*3½*	*3¾*	*4*
	$3.30	*3.60*	*3.85*	*4.10*	*4.40*

Plunger Cup Leathers—Per 100:				
Inch...	*2½*	*3*	*3½*	*4*
	$2.75	*3.85*	*5.00*	*6.00*

Punches—

Saddlers' or Drive, good..... doz. 50@75¢
Spring, single tube, good quality.....$1.75@2.00
Revolving (4 tubes)..... doz. $3.50@3.75
Bemis & Call Co.'s Cast St'l Drive.50%
Bemis & Call Co.'s Check.....55%
Morrill's Nos. 1AA, 1A, 1B, 1C, $15.00.....50%
Hercules, 1 die, each $5.00.....50%
Niagara Hollow Punches.....40%
Niagara Solid Punches.....55&10%
Wm. Schollhorn Co.:
Bernard.....33⅓%
Lodi, 50%; Paragon.....50%
Steel Screw, B. & K. Mfg. Co.....50%
Tinners' Hollow, P., S. & W. Co...40%
Tinners' Solid, P., S. & W. Co., per doz., $1.44.....60%

Rail—Barn Door, &c.—

Sliding Door, Painted Iron.... 2½@2¾¢
Sliding Door, Wrought Brass, 1½ in., lb., 36¢.....30%
Allith Mfg. Co.: Reliable Hanger Track.....50%
Cronk's:
Double Braced Steel Rail..per ft. 2¾¢
O. N. T. Rail.....2½¢
Griffin's:
xxx, per 100 ft., 1 x 3-16 in., $3.00; 1¼ x 3-16 in., 3.50.
Hinged Hanger, per 100 ft., 1 x 3-16 in., $3.10; 1¼ x 3-16 in., $3.60.
Lane's:
Hinged Track, per 100 ft., 1 in., $3.40; 1¼ in., $4.10.
O. N. T., per 100 ft., 1 in., $2.75; 1¼ in., $3.50; 1½ in., $4.00.
Standard, 1¼ in.....per 100 ft. $4.00
Lawrence Bros.:
per 100 ft. No. 201, $4.00; No. 202, $4.00
New York, 1 x 3-16 in., per 100 ft. $2.75
McKinney's:
Hinged Hanger Rail, per ft., 11¢..50%
None Better.....per ft. 3¾¢
Standard.....per ft. 4¢
Myers' Stayon Track.....60&10%
Richards' Mfg. Co.:
Common, 1 x 3-6 in., $3.00; 1¼ x 3-16, $3.25; 1¼ x 3-16, $3.50.
Special Hinged Hanger Rail...60&10%
Lag Screw Rail, No. 65.....50%
Gauge Trolley Track, per ft., No. 31, 9¢; No. 32, 14¢; No. 33, 20¢.....60&10%
No. 50.....
Nos. 61, $3.00; 62, $3.25; 63, $3.50; 64, $4.00; 65, $3.25; 46, $3.50; 49, No. 1, $3.25; 49, No. 2, $3.50.
Stowell's:
Cast Rail.....per ft. 1¾¢
Steel Rail, Plain.....25%
Wrought Bracket, 1 3-16 in....per ft. 3¢
Wrought Bracket, 1½ x 5-16..per ft. 7¢
Swett's Hylo, per ft. 11¢.....60%
P. L. B. Steel Rail.....per 100 ft. $3.00
No. 0, 1 x 3-16.....per 100 ft. $2.75

Rakes—

NOTE.—Many goods are sold at net prices.
Fort Madison Red Head Lawn....$3.25
Fort Madison Blue Head Lawn....$2.70
Jackson Lawn, 29 and 30 teeth, per doz., net.....$4.25
Cronk's:
New Champion Garden, per doz., 12 teeth, $15.00; 14, $16.50; 16, $18.00..75%
Victor Garden, per doz., 12 teeth, $15.00; 14, $16.50; 16, $18.00.....60%
Queen City Lawn, per doz., 20 teeth, $3.15; 24, $3.60.....net.
Anticlog Lawn, per doz.....$1.00
Malleable Garden.....70&10%
Kohler's:
Lawn Queen, 20-tooth.....per doz. $3.45
Lawn Queen, 24-tooth.....per doz. $3.60
Paragon, 20-tooth.....per doz. $2.75
Paragon, 24-tooth.....per doz. $3.00
Steel Garden, 14-tooth....per doz. $2.40
Malleable Garden, 14-tooth, per doz. $1.75@2.00

Rasps, Horse—

Disston's.....75%
Heller Bros.'.....70&5@70&10&5%
McCaffrey's American St'd...60&10&5%
New Nicholson.....70&10@75%
See also Files.

Razors—

Boras—I C.....60%
Fox Razors, per doz., No. 42, $20.00; No. 44, $20.00; No. 82, Platina, $25.00. } Dis. 40%
Red Devil.....50%
Silberstein:
Carbo Magnetic, $18.00; Griffon, No. 65, $15.00; Griffon, No. 00, $12.00; all other Razors, 40%.

Safety Razors—

Kampfe Bros.:
Star Safety, 25%; Star Interchangeable, 25%; Star Safety Corn, 25%.
Silberstein.....40%

Reels, Fishing—

Hendryx:
M 6, Q 6, A 6, B 6, M 9¼, M 16, Q 16, A 16, B 16, 4008, Rubber, Populo, Nickeled Populo.....20%
Aluminum, German Silv., Bronze.25%
1240 N, 124 N.....20%
3004 N, 06 N, 6 RM, G 9.....25%
4 N, 6 PN, 24 N, 26 PN.....20%
2904 P., 33½%; 2904 PN, 33½%; 0924 N., 33½%; 02084 N., 33½%; 002904 PN., 33½%; 802 N., 33½%.
986 PN, 2904 N, 974 PN.....25%
5009 PN, 5009 N.....20%
Competitor, 102 P., 102 PN, 202 P., 202 PN, 102 PR, 202 PR.....20%
304 P, 304 PN, 00304 P, 00304 PN.33⅓%

Registers—*List July 1, 1903.*

Japanned, Electroplated and Bronzed.....70%
White Porcelain Enamel....60%
Solid Brass or Bronze Metal, 40&10%

Revolvers—

Single Action.....95¢@$1.00
Double Action, except 44 cal..$1.85
Double Action, 44 caliber....$2.00
Automatic.....$3.25
Hammerless.....$3.75

Riddles, Hardware Grade

16 in......per doz. $2.50@$2.75
17 in......per doz. $2.75@$3.00
18 in......per doz. $3.00@$3.25

Rings and Ringers—

Bull Rings—

	2	*2½*	*3 inch.*
Steel	*$0.70*	*0.75*	*0.80 doz.*
Copper	*$1.00*	*1.15*	*1.40 doz.*

Rea's Improved Self-Piercing, Copper, 2 in., per doz., $1.25; 2½ in., $1.50; 3 in., $1.75.

Hog Rings and Ringers—

Hill's Rings, gro. boxes.$4.00@$4.50
Hill's Ringers, Gray Iron..... doz. 50@55¢
Hill's Ringers, Malleable Iron... doz. 70@75¢
Blair's Rings...per gro.$4.75@5.25
Blair's Ringers.per doz. $0.60@.65
Brown's Rings..per gro.$5.00@5.50
Brown's Ringers.per doz.$0.60@.65

Rivets and Burrs—

Copper.....40@42½%
Iron or Steel.....75@75&5%

Bifurcated and Tubular—

Assorted in Boxes.
Bifurcated, per doz. boxes, pasteboard boxes, 23@25¢; Tin boxes, 29@32¢.
Tubular, per doz. boxes, 50 count, 29@32¢; 100 count, 51@58¢.

Rollers—

Acme, Stowell's Anti-Friction.....50%
Cronk's Stay No. 65, $0.90; No. 50.....$1.00
Cronk's Brinkerhoff No. 55, $0.60; No. 56.....$0.84
Lane's Stay.....40%
Richards' Stay:
Handy Adj. and Reversible No. 53.75¢
O. K. Adj. and Reversible No. 58.50¢
Lag Screw, Nos. 55 and 57.....50%
Underwriters', Nos. 59, 60.....50%
Favorite, No. 54.....60%
Stowell's Barn Door Stay..per doz. $1.00
Swett's Anti-Friction.....50%
Screw and Spike Stay.....per doz. 65¢
Hinge Adjustable Stay.....per doz. 90¢

Rope—

Manila, 7-16 in. diam. and larger: Pure.....lb., 12½¢
Sisal, 7-16 in. diam. and larger: Pure.....lb., 9¢
Sisal, 7-16 in. diam. and larger: No. 2 quality.....lb., 7¾¢
Sisal, Hay, Hide and Bale Ropes, Medium and Coarse: Mixed.....lb., 7¾¢
Pure.....lb., 9¢
Sisal, Tarred, Medium Lath Yarn, Coarse and Untarred: Mixed.....lb., 7¾¢
Pure.....lb., 9¢
Cotton Rope: Best, ¼-in. and larger..16½@18¢
Medium, ¼-in. and larger, 15½@16½¢
Common, ¼-in. and larger..10¢
In coils, ½¢ advance.
Jute Rope: Thread, No. 1, ¼-in. & up, lb., 8@8½¢
Thread, No. 2, ¼-in. & up, lb., 7@7½¢
Old Colony Manila Transmission Rope.....per lb 17½¢

Wire Rope—

Galvanized.....37½@38½%
Plain.....45@47½%

Ropes, Hammock—

Covert Mfg. Co.:
Jute, 45%; Sisal.....33⅓%

Rules

Boxwood .....60@60&10%
Ivory .....35&10@35&10&5%
Chapin-Stephens Co.:
Boxwood 60%
Flexifold .....27½&10&10%
Ivory .....35@35&10&10%
Miscellaneous .....50@50&10&10%
Stephens' Combination.....55@55&10%
Stationers' .....10@10&10%
Keuffel & Esser Co.:
Folding, Wood.....35&10%
Folding, Steel.....33⅓&10%
Lufkin's Steel.....50&10%
Lufkin's Lumber.....60%
Stanley R. & L. Co.:
Boxwood 62½%
Ivory 45%
Miscellaneous 60%
Zig Zag.....40%
Zig Zag, Pin Joint.....62½%
Upson Nut Co.:
Boxwood .....60@60&10%
Ivory .....35&10@35&10&10%

Sash Balances—
See *Balance, Sash.*

Sash Locks—
See *Locks, Sash.*

Sash Weights—
See *Weights, Sash.*

Sausage Stuffers or Fillers
See *Stuffers or Fillers, Sausage.*

Saw Frames—
See *Frames, Saw.*

Saw Sets—See *Sets, Saw.*

Saw Tools—See *Tools, Saw.*

Saws—
Atkins':
Circular 50%
Hand .....50&10@60%
Cross Cuts.....35&5%
Mulay, Mill and Drag.....50%
One-Man Saw, 40%; Wood Saws, 40%; Hand, Compass, &c., 40%.
Chapin-Stephens Co.:
Turning Saws and Frames..30@30&10%
Diamond Saw & Stamping Works:
Sterling Kitchen Saws.....50&10&10%
Disston's:
Circular, Solid and Ins'ted Tooth.50%
Band, 2 to 14 in. wide.....60%
Band, ¼ to 1⅝.....60%
Crosscuts 45%
Narrow Crosscuts.....50%
Mulay, Mill and Drag.....50%
Framed Woodsaws.....25%
Woodsaw Blades.....25%
Woodsaw Rods.....25%
Hand Saws, Nos. 12, 99, 9, 16, d100, D8, 120, 76, 77, 8.....25%
Hand Saws, Nos. 7, 107, 107½, 3, 1, 0, 00, Combination.....30%
Compass, Key Hole, &c.....25%
Butcher Saws and Blades.....30%
C. E. Jennings & Co.'s:
Back Saws.....25%
Butcher Saws.....30%
Compass and Key Hole Saws..35&5%
Framed Wood Saws.....30%
Hand Saws.....20&2½%
Wood Saw Blades.....35%
Millers Falls:
Butcher Saws.....15&10%
Star Saw Blades.....15&10%
Peace & Richardson's Hand Saws...30%
Simonds':
Circular Saws.....50%
Crescent Ground Cross Cut Saws..35%
One-Man Cross Cuts.....40&10%
Gang Mill, Mulay and Drag Saws.50%
Band Saws.....50%
Back Saws.....25@25&7½%
Butcher Saws.....35@35&7½%
Hand Saws.....25@25&7½%
Hand Saws, Bay State Brand.....45%
Compass, Key Hole, &c..25@25&7½%
Wood Saws.....35@35&7½%
Springfield Mach. Screw Co.:
Diamond Kitchen Saws....40&10@50%
Butcher Saws Blades.....35@40%
Wheeler, Madden & Clemson Mfg. Co.'s Cross Cut Saws.....50%

Hack Saw Blades and Frames—
Atkins' Hack Saw Blades A A A..25%
Disston's:
Concave Blades.....25%
Keystone Blades.....35%
Hack Saw Frames.....30%
Fitchburg File Works, The Best...35%
C. E. Jennings & Co.'s:
Hack Saw Frames, Nos. 175, 180.....40&7½%
Hack Saws, Nos. 175, 180, complete, 40&7½%
Goodell's Hack Saw Blades.....40%
Griffin's Hack Saw Frames..35&5&10%
Griffin's Hack Saw Blades....35&5&10%
Springfield Mach. Screw Co.:
Diamond Hack Saw Blades.....35%
Diamond Hack Saw Frames.....50%
Star Hack Saws and Blades.....15&10%
Sterling Hack Saw Blades....30&10&5%
Sterling Hack Saw Frames...30&10&10%
Sterling Power Hack Saw Machines, each, No. 1, $25.00; No. 2, $30.00..10%
Victor Hack Saw Blades.....25%
Victor Hack Saw Frames.....40%

Scroll—
Barnes, No. 7, $15.....25%
Barnes' Scroll Saw Blades.....40%
Barnes' Velocipede Power Scroll Saw, without boring attachment, $18; with boring attachment, $20.....20%
Lester, complete, $10.00.....15&10%
Rogers, complete, $4.00.....15&10%

Scales—
Family, Turnbull's....50@50&10%
Counter:
Hatch, Platform, ½ oz. to 4 lbs. .....*doz. $5.50*
Two Platforms, ½ oz. to 8 lbs. .....*doz. $16.00*
Union Platform, Plain.$1.70@1.90
Union Platform, Stpd.$1.85@2.15
Chatillon's:
Eureka 25%
Favorite 40%
Crocers' Trip Scales.....50%
Chicago Scale Co.:
The "Little Detective"....25 lbs 50%
Union or Family No. 2.....60%
Portable Platform (reduced list)..50%
Wagon or Stock (reduced list).25@35%
"The Standard" Portables.....50%
"The Standard" R. R. and Wagon.50%

Scrapers—
Box, 1 Handle.....*doz. $2.00@2.25*
Box, 2 Handle.....*doz. $2.50@2.60*
Ship....*Light, $2.00; Heavy, $4.50*
Adjustable Box Scraper (S. R. & L. Co.), $6.00.....45%
Chapin-Stephens Co., Box, 30@30&10&10%

Screens, Window and Frames—
Maine Screen Frames.....40&10&5%
See also *Doors.*

Screws—Bench and Hand
Bench, Iron, doz., 1 in., $2.50@2.75; 1⅛, $3.00@3.25; 1¼, $3.50@3.75
Bench Wood .....*$5@25&5%*
Hand, Wood .....*25@25&5%*
R. Bliss Mfg. Co., Hand....30@30&10%
Chapin-Stephens Co., Hand.....25%

Coach, Lag and Hand Rail—
Lag, Cone Point, list Oct. 1, '99 .....*75&15%*
Coach, Gimlet Point, list Oct. 1, '99.....*75&10%*
Hand Rail, list Jan. 1, '81.....*70&10@75%*

Jack Screws—
Standard List.....*75&10@80%*
Millers Falls.....50&10&10%
Millers Falls, Roller.....50&10%
P., S. & W.....50%
Swett Iron Works.....75@80%

Machine—
List Jan. 1, '98:
Flat or Round Head, Iron....*50@50&10%*
Flat or Round Head, Brass....*50@50&10%*

Set and Cap—
Set (Iron).....*80&7½%*
Set (Steel), net advance over Iron *25%*
Sq. Hd. Cap.....*75&10&7½%*
Hex. Hd. Cap.....*75&10&7½%*
Rd. Hd. Cap.....*60&10%*
Filister Hd. Cap.....*60&10&10%*

Wood—
List July 23, 1903.
Flat Head, Iron....*87½&10@..%*
Round Head, Iron...*85 &10@..%*
Flat Head, Brass.....*82½&10%*
Round Head, Brass..*80 &10@..%*
Flat Head, Bronze...*77½&10@..%*
Round Head, Bronze.*75 &10@..%*
Drive Screws.....*87½&10%*

Scroll Saws—
See *Saws, Scroll.*

Scythes—
Per doz.
Grass, No. 1, Plain....*$6.25@6.75*
Clipper, Bronzed Webb..*$6.50@7.00*
No. 3 Clipper, Pol'd Webb..*$6.75@7.25*
No. 6 Clipper and Solid Stee., *$7.00@7.50*
Bush, Weed and Bramble, No. 2. *$6.50@7.00*
Grain, No. 1.....*$8.25@8.75*
Bronzed Webb, No. 1..*$8.50@9.00*
Nos. 3 and 4 Clipper, Grain..*$8.75@9.25*
Solid Steel, No. 6.....*$9.25@9.75*

Seeders, Raisin—
Enterprise .....25@30%

Sets— Awl and Tool—
Fray's Adj. Tool Handles, Nos. 1, $12; 2, $18; 3, $12; 4, $9; 5, $7.....50%
C. E. Jennings & Co.'s Model Tool Holders 30%
Millers Falls Adj. Tool Handles, No. 1, $12; No. 4, $12; No. 5, $18....15&10%

Garden Tool Sets—
Ft. Madison Three Plows, Hoe, Rake and Shovel.....℔ doz sets $9.00

Sets, Nail—
Octagon .....*gro. $3.50@3.75*
Buck Bros.....27½%
Cannon's Diamond Point, ℔ gro.$12.40
Mayhew's .....℔ gro. $9.00
Snell's Cor'gated, Cup Pt....℔ gro. $7.20
Snell's Knurled, Cup Pt....℔ gro. $7.20
Springfield Mach. Screw Co.:
Diamond Knurled Cup Pt.℔ gro. $7.50

Rivet—
Regular list.....*75@75&10%*

Saw—
Atkin's:
Criterion 40%
Adjustable 40%
Bemis & Call Co.'s:
Cross Cut.....30%
Plate 20%
Disston's Star, Monarch and Triumph 30%
Morrill's No. 1, $15.00.....50%
Nos. 3 and 4, Cross Cut, $20.00...50%
No. 5, Mill, $30.00.....50%
Nos. 10, 11, 95, $15.60.....50%
No. 1 Old Style, $10.00.....50%
Special, $16.25.....50%
Giant Royal Cross Cut.....℔ doz. $8.00
Royal, Hand.....℔ doz. $4.50
Taintor Positive.....℔ doz. $6.75

Shaving—
Fox Shaving Sets, No. 30 .....℔ doz., net, $24.00
Smith & Hemenway Co.'s.....60%

Sharpeners, Knife—
Chicago Wheel & Mfg. Co.....70%
Pike Mfg. Co.:
Fast Cut Pocket Knife Hones, ℔ doz.....$1.50
Mounted Kitchen Sand Stone, ℔ doz.....$1.50
Natural Grit Carving Knife Hones, ℔ doz.....$3.00
Quick Cut Emery Carving Knife Hones, ℔ doz.....$1.50
Quick Edge Pocket Knife Hones, ℔ doz.....$2.50

Skate—
Smith & Hemenway Co.....20%

Shaves, Spoke—
Iron .....*doz.$1.10@1.25*
Wood .....*doz.$1.75@2.25*
Bailey's (Stanley R. & L. Co.).....45%
Razor Edge (Stanley R. & L. Co.)..35%
Chapin-Stephens Co.....30@30&10&10%
Goodell's ℔ doz. $9.00.....15&10%
Wood's F1 and F2.....50%

Shears—
Cast Iron..	7	8	9 in.
Best	*$16.00*	*18.00*	*20.00 gro.*
Good	*$13.00*	*15.00*	*17.00 gro.*
Cheap	*$5.00*	*6.00*	*7.00 gro.*

Straight Trimmers, &c.:
Best quality Jap....*70@70&10%*
Best quality, Nickel..*60@60&10%*
Fair quality, Jap....*80@80&5%*
Fair quality, Nickel..*75@7"&10%*
Tailors' Shears.....*40@40&10%*
Acme Cast Shears.....40@40&5%
Heinisch's Tailor's Shears.....10%
Wilkinson's Sheep, 1900 list, 30&10&5%; Grass, 50&10%; Horse or Mule, 50&10%

Tinners' Snips—
Steel Blades.....*20&5@20&10%*
Steel Laid Blades.....*40&10@50%*
Forged Handles, Steel Blades, Berlin, 50@50&5%
Heinisch's Snips.....40%
Jennings & Griffin Mfg. Co.'s, 6½ to 10 in.....50%
Niagara Snips.....40%
P., S. & W.'s Forged Handles.....20%

Pruning Shears—
Cronk's Hand Shears.....33⅓%
Cronk's Wood Handle Shears.....33⅓%
Disston's Combined Pruning Hook and Saw, ℔ doz. $18.00.....25%
Disston's Pruning Hook only, ℔ doz. $12.00 .....25%
John T. Henry Mfg. Co.:
Pruning Shears, all grades....50&10%
P., S. & W. Co.....33⅓%
Wilkinson's Hedge, Wilcut Brand, 60&10%
Wilkinson's Lawn and Border, Wilcut Brand.....60&10%

Sheaves—Sliding Door—
Stowell's Anti-Friction.....50%
Reading 40%
R. & E. list.....33⅓%
Wrightsville Hatfield Pattern.....80%

Sliding Shutter—
Reading list.....40%
R. & E. list.....33⅓%

Shells—Shells, Empty—
Brass Shells, Empty:
Climax, Club, Rival, 10 and 12 gauge .....65&5%
Paper Shells, Empty:
Acme, Ideal, Leader, New Rapid, Magic, 10, 12, 16 and 20 gauge..25&5%
Blue Rival, New Climax, Challenge, Monarch, Defiance, Repeater, Yellow Rival, 10, 12, 16 and 20 gauge 20%
Climax, Union, League, New Rival, 10 and 12 gauge.....25%
Climax, Union, League, New Rival, 14, 16 and 20 gauge.....20%
Expert, Metal Lined and Pigeon, 10, 12, 16 and 20 gauge.....33⅓
Robin Hood, Low Brass.....20&5%
Robin Hood, High Brass.....30&5%

Shells, Loaded—
Loaded with Black Powder..*40%*
Loaded with Smokeless Powder, medium grade.....*40&5%*
Loaded with Smokeless Powder, high grade.....*40&10&10%*
Robin Hood Smokeless Powder:
Robin Hood, Low Brass.....50%
Comets, High Brass.....50&10&5%

Shoes, Horse, Mule, &c.—
F.o.b. Pittsburgh:
Iron .....per keg *$4.00*
Steel .....per keg *$3.75*
Burden's, all sizes.....℔ keg $3.90

Shot—
25-lb. bag.
Drop, up to B.....*$1.90*
Drop, B and larger.....*2.15*
Buck *2.15*
Chilled *2.15*
Dust *2.35*

Shovels and Spades—
Association List, Nov. 15, 1902..40%

Snow Shovels—
Long Handle.....*$2.75@$3.00*
Wood and Mail, D. Handle. *$3.25@$3.50*

Sieves and Sifters—
Hunter's Imitation .....*gro.$9.50@10.00*
Hunter's Genuine .....*per gro. $12.00@12.50*
Buffalo Metallic Blued, R. M. Co., ℔ gr.

14&16	16&18	18&20
$13.20	$13.50	$14.40

Sieves, Seamless Metallic
—Per dozen.—

Mesh	*14*	*16*	*18*	*20*
Iron Wire	*$1.05*	*1.05*	*1.10*	*1.20*
Tinned Wire	*$1.15*	*1.15*	*1.20*	*1.30*

Sieves, Wooden Rim—
Nested, 10, 11 and 12 Inch.
Mesh 18, Nested....*doz. $0.90@0.95*
Mesh 20, Nested....*doz. $1.00@1.05*
Mesh 24, Nested....*doz. $1.30@1.40*

Sinks, Cast Iron—
Painted, Standard list:
12 x 12 to 22 x 36 in....*60&5%*
20 x 40 to 24 x 50 in.....*55%*
24 x 60 to 24 x 120 in.....*35%*
Barnes' low list:
Up to and including 20 x 36 in....60%
20 x 40 to 24 x 50 in.....55%
NOTE.—There is not entire uniformity in lists used by jobbers.

Skeins, Wagon—
Cast Iron.....*70@75&10%*
Steel .....*40@45%*

Slates, School—
Factory Shipments.
"D" Slates.....*50@50&10%*
Eureka, Unexcelled Noiseless..*60&5 tens*
Victor A, Noiseless..*60&4 tens 45%*

Slaw Cutters—See *Cutters.*

Snaps, Harness—
German .....*40@40&10%*
Covert Mfg. Co.:
Derby, 30&2%; Yankee, 30&2%; Yankee Roller, 30&2%.....
High Grade, 45%; Trojan.....45%
Jockey 35%
Oneida Community:
Harness Snaps, 1 inch.....60&5%
Swivel Snaps.....60%
Swivels 50%

Snaths—
Scythe *50%*

Snips, Tinners—See *Shears.*

Spoons and Forks—
Silver Plated—
Good Quality.....*50&10@60&5%*
Cheap .....*60@60&10%*
International Silver Co.:
1847 Rogers Bros. and Rogers & Hamilton .....40&10%
Rogers & Bro., William Rogers' Eagle Brand.....50&10%
Anchor, Rogers Brand.....60%
Wm. Rogers & Son.....60&10%

Miscellaneous—
German Silver.....*60@66&5%*
Cattaraugus Cutlery Co.:
Seneca Silver.....50%

Tinned Iron—
Teas .....*per gro. 45@50¢*
Tables.....*per gro.$0.50@$1.00*

Springs— Door—
Chicago (Coil).....40&10%
Gem (Coil).....20%
Pullman (Coil).....25%
Reliance (Coil).....40&10%
Star (Coil).....30%
Torrey's Rod, 39 in.....℔ doz. $1.10

Carriage, Wagon, &c.—
1¼ in. and Wider: *Per lb*
Black .....*4@4¼¢*
Half Bright.....*4@4¼¢*
Bright .....*4½@4¾¢*
Painted Seat Springs:
1½ x 2 x 26.....*per pr. 42¢*
1½ x 3 x 28.....*per pr. 70¢*

Sprinklers, Lawn—
Enterprise .....25@30%
Philadelphia No. 1, ℔ doz. $12; No. 2, $15; No. 3, $24.....30%
Pleuger & Henger Mfg. Co.:
Cactus, 70%; Japanese, 75%; Nationals, 65%.

Squares—
Nickel plated.. } *List Jan. 5, 1900.*
Steel and Iron. } 75@80%
Rosewood Hdl. Try Square and T-Bevels .....*60&10&10@70%*
Iron Hdl. Try Squares and T-Bevels .....*40&10@40&10&10%*
Disston's Try Squares and Bevels, Rosewood Handle, 67½%; Iron Stock and Bevel.....20%
Winterbottom's Try and Miter, No. 1, 40%; No. 2.....50%

Squeezers, Lemon
Wood, Common, gro., No. 0, $5.25@$5.50; No. 1, $6.25@$6.50.
Wood, Porcelain Lined:
Cheap .....*doz. $1.00*
Good Grade.....*doz. $1.25*
Tinned Iron.....*doz. $0.75@1.25*
Iron, Porcelain Lined...*doz. $1.75*

Staples—
Barbed Blind.....*lb. 6@6½¢*
Electricians', Association list..*80&10&10&10%*
Fence Staples, Plain, $2.25; Galvanized *$2.55*
Poultry Netting Staples.....*per lb. 3¼@3½¢*
Grand Crossing Tack Co.'s list..80&10%

Steels, Butchers'—
Dick's 30%
Foster Bros.....30%
C. & A. Hoffmann's.....40%

Steelyards— .....30@30&10%

Stocks and Dies—
Blacksmiths' .....*50@50&10%*
Curtis Rev'ble Ratchet Die Stock..25%
Derby Screw Plates.....25%
Green River.....25%
Lightning Screw Plate.....25%
Little Giant.....25%
Reece's New Screw Plates.....25%

Stoners, Cherry—
Enterprise .....25@30%

Stones—Oil, &c.
Chicago Wheel & Mfg. Co., 1904 list:
Gem Corundum Oil, Double Grit.60%
Gem Corundum Axe, Single or Double Grit.....60%
Gem Corundum Slips.....60%
Gem Corundum Razor Hones....50%
Pike Mfg. Co., 1904 list: ℔ lb.
Arkansas St. No. 1, 3 to 5½ in.$2.80
Arkansas St. No. 1, 5½ to 8 in.$3.50
Arkansas Slips No. 1.....$4.00
Lily White Washita, 4 to 8 in.60¢
Rosy Red Washita, 4 to 8 in..60¢
Washita St., Extra, 4 to 8 in.50¢
Washita St., No. 1, 4 to 8 in.40¢
Washita St., No. 2, 4 to 8 in.30¢
Lily White Slips.....90¢
Rosy Red Slips.....90¢
Washita Slips, Extra.....80¢
Washita Slips, No. 1.....70¢
Washita Slips, No. 2.....40¢
India Oil Stones (entire list)....33⅓%
Quickcut Emery and Corundum Oil Stone, Double Grit.....33⅓%
Quickcut Emery and Corundum Axe Stone, Double Grit.....33⅓%
Quickcut Emery Rubbing Bricks.33⅓%

Hindostan No. 1, B'g'lar. ℔ lb 8¢
Hindostan No. 1, Small.. ℔ lb 10¢
Axe Stones (all kinds)
Turkey Oil Stones, Extra, 5 to 8 in. ℔ lb 50¢
Queer Creek Stones, 4 to 8 in. 20¢
Queer Creek Slips 40¢
Sand Stone 6¢
} 33⅓%

Scythe Stones—

Chicago Wheel & Mfg. Co.:
Gem Corundum, 10 in., $8.00 ℔ gro., 12 in., $10.80.
Norton Emery Scythe Stones:
Less than gross lots ℔ gro. $9.00
One gross or more ℔ gro. $7.20
Lots of 10 gross or more ℔ gro. $6.00
Pike Mfg. Co., 1901 list:
Black Diamond S. S. ℔ gro. $12.00
Lamoille S. S. ℔ gro. $11.00
White Mountain S. S. ℔ gro. $9.00
Green Mountain S. S. ℔ gro. $6.00
Extra Indian Pond S.S. ℔ gro. $7.50
No. 1 Indian Pond S.S. ℔ gro. $7.00
No. 2 Indian Pond S.S. ℔ gro. $4.50
Leader Red End S. S. ℔ gro. $4.50
Quick Cut Emery ℔ gro. $10.00
Pure Corundum ℔ gro. $18.00
Crescent $7.00
Emery Scythe Rifles, 2 Coat, $8
Emery Scythe Rifles, 3 Coat, $10
Emery Scythe Rifles, 4 Coat, $12
Balance of 1904 list 33⅓%

Stoppers, Bottle—

Victor Bottle Stoppers ℔ gro. $9.00

Stops— Bench—

Millers Falls 15&10%
Morrill's, ℔ doz., No. 1, $10.00 50%
Morrill's, No. 2, $12.50 50%

Door—

Chapin-Stephens Co. 60@60&10%

Plane—

Chapin-Stephens Co. 20%

Straps— Box—

Cary's Universal, case lots 25&20%

Stretchers, Carpet—

Cast Iron, Steel Points, doz. 60@60&10%
Socket doz. $1.00
Bullard, ℔ doz. $1.00
Excelsior Stretcher and Tack Hammer Combined, ℔ doz. $6.00 20%

Strops, Razor—

Star Diagonal Strop 25%

Stuffers, Sausage—

Enterprise Mfg. Co. 25@25&7½%
National Specialty Co., list Jan. 1, 1902 30&5%

Sweepers, Carpet—

National Sweeper Co.: ℔ doz.
Louis XV, Roller Bearing, Gold Plated $120.00
Hepplewhite, Roller Bearing, Silver Plated $72.00
Sheraton, Roller Bearing, N'kel. $60.00
Ye Mission, Roller Bearing, Oxidized Coppered $36.00
Transparent, Roller Bearing, Plate Glass top, Nickeled $36.00
National Queen, Roller Bearing, Fancy Veneers $27.00
Loyal, Roller Bearing, Veneers, Nickeled $25.00
Triple Medal, Roller Bearing, Nickeled $24.00
Marion, Roller Bearing, N'kel. $24.00
Marion Queen, Roller Bearing, Nickeled $21.00
Monarch, Roller Bearing, N'kel. $22.00
Monarch, Roller Bearing, Jap. $20.00
Perpetual, Regular B'r'gs, N'kel. $20.00
Perpetual, Regular B'r'gs, Jap. $18.00
Monarch Extra (17 in. case), Roller Bearing, Nickeled $36.00
Monarch Extra (17 in. case), Roller Bearing, Japanned $33.00
Auditorium (26 in. case), Roller Bearing, Nickeled $54.00
Mammoth (30 in. case), Roller Bearing, Nickeled $60.00

NOTE.—Rebates: 50c *per dozen on three-dozen lots;* $1 *per dozen on five-dozen lots;* $3 *per dozen on ten-dozen lots;* $3.50 *per dozen on twenty-five-dozen lots.*

Streator Metal Stamping Co.:
Model E, Sanitaire ℔ doz $25.00
Model A, Sterling ℔ doz. $25.00
Model B, Sterling, Nickeled ℔ doz. $23.00
Model B, Sterling, Japanned ℔ doz. $21.00
Model C, Sterling ℔ doz. $21.50
Model D, Sterling ℔ doz. $19.50

Tacks, Finishing Nails, &c.

New List, May 1, 1905.
American Carpet Tacks 90&40@—%
American Cut Tacks 90&40@—%
Swedes Cut Tacks 90&40@—%
Swedes Upholsterers' 90&50@—%
Gimp Tacks 90&50@—%
Lace Tacks 90&40@—%
Trimmers' Tacks 90&40@—%
Looking Glass Tacks 65@—%
Bill Posters' and Railroad Tacks, 90&50@—%
Hungarian Nails 85@—%
Finishing Nails 70&10@—%
Trunk and Clout Nails 80@—%

NOTE.—The above prices are for Standard Weights. An extra 5% is given on Medium Weights, and an extra 10&5% is given on light weights.

Miscellaneous—

Double Pointed Tacks 90&5 or 6 tens

See also Nails, Wire.

Tanks, Oil— Each.

Emerald, R. M. Co. 30-gal. $3.40
Emerald, R. M. Co. 60-gal. $4.25
Queen City, R. M. Co. 30-gal. $3.65
Queen City, R. M. Co. 60-gal. $4.50

Tapes, Measuring—

American Asses' Skin 50@—%
Patent Leather 25@30&5%
Steel 33 1-3&5%
Chesterman's 25@25&5%

Keuffel & Esser Co.:
Favorite, Ass Skin 40&10@50%
Favorite, Duck and Leather 25&5@25&10%
Metallic and Steel, lower list, 35@35&5%; Pocket, 35@35&5%.
Lufkin's:
Asses' Skin 40&10@50%
Metallic 30@30&5%
Patent Bend, Leather 25&5@25&10%
Pocket 40@40&5%
Steel 33⅓@35%

Teeth, Harrow—

Steel Harrow Teeth, plain or headed, ⅝-inch and larger per 100 lbs. $2.75@$3.00

Thermometers—

Tin Case 80&10@80&10&5%

Ties, Bale—Steel Wire—

Single Loop 80&2½%
Monitor, Cross Head, &c. 70%

Brick Ties—

Niagara Brick Ties 25&10%

Tinners' Shears, &c.—

See *Shears, Tinners', &c.*

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tire Benders, Upsetters, &c.

See *Benders and Upsetters, Tire.*

Tools—Coopers'—

L. & I. J. White 20@20&5%

Hay—

Myers' Hay Tools 50%
Stowell's Hay Carriers, 50%; Hay Forks, 50%; Fork Pulleys, 50%.

Miniature—

Smith & Hemenway Co.'s 25%

Saw—

Atkins' Cross Cut Saw Tools 40%
Simonds' Improved 33⅓%
Simonds' Crescent 25%

Ship—

L. & I. J. White 25%

Transom Lifters—

See *Lifters, Transom.*

Traps—Fly—

Balloon, Globe or Acme, doz. $1.15@$1.25; gro. $11.50@12.00
Harper, Champion or Paragon, doz. $1.25@1.40; gro. $13.00@13.50

Game—

Imitation Oneida 75@75&5%
Newhouse 45@45&5%
Hawley & Norton 65%
Victor 70&10%
Oneida Community Jump 50%

Mouse and Rat—

Mouse, Wood, Choker, doz. holes 8½@9¢
Mouse, Round or Square Wire, doz. 85@90¢
Marty French Rat and Mouse Traps (Genuine):
No. 1, Rat, each $1.21; ℔ doz. $13.75
No. 3, Rat, ℔ doz. $6.50; case of 56 $5.75 doz.
No. 3½, Rat, ℔ doz. $5.25; case of 72 ℔ gro. $4.70 doz.
No. 4, Mouse, ℔ doz. $3.85; case of 150 $3.00 doz.
No. 5, Mouse, ℔ doz. $3.00; case of 150 $2.25 doz.

Trimmers, Spoke—

Wood's E I 50%

Trowels—

Disston Brick and Pointing 25%
Disston Plastering 20%
Disston "Standard Brand" and Garden Trowels 30%
Kohler's Steel Garden Trowels, ℔ gro., 5 in., $4.80; 6 in., $6.00.
Never-Break Steel Garden Trowels.. ℔ gro. $6.00
Rose Brick and Plastering 25&5%
Woodrough & McParlin, Plastering 25%

Trucks, Warehouse, &c.—

B. & L. Block Co.:
New York Pattern 50&10%
Western Pattern 60&10%
Handy Trucks ℔ doz. $16.00
Grocery ℔ doz. $15.00
Daisy Stove Trucks, Improved Pattern ℔ doz. $18.50
McKinney Trucks each $10.00
Model Stove Trucks ℔ doz. $18.50

Tubs, Wash—

No. 1 2 3
Galvanized, per doz. $4.25 4.75 5.25
Galvanized Wash Tubs (R. M. Co.):
No. 1 2 3 10 20 30
Per doz., net $5.70 6.30 7.20 6.60 7.20 8.10

Twine, Miscellaneous—

Flax Twine: BC. B.
No. 9, ¼ and ½-lb. Balls 22@24¢
No. 12, ¼ and ½-lb. Balls 19@21¢
No. 18, ¼ and ½-lb. Balls 16@18¢
No. 24, ¼ and ½-lb. Balls 16@18¢
No. 36, ¼ and ½-lb. Balls 15@17¢
Chalk Line, Cotton ½-lb. Balls 25@50¢
Cotton Mops, 6, 9, 12 and 15 lb. to doz. 10@18¢
Cotton Wrapping, 5 Balls to lb., according to quality 14½@20¢
American 2-Ply Hemp, ¼ and ½-lb. Balls 13@14¢
American 3-Ply Hemp, 1-lb. Balls 13@14¢
India 2-Ply Hemp, ¼ and ½-lb. Balls (Spring Twine) 9@10¢
India 3-Ply Hemp, 1-lb. Balls 9@10¢
India 3-Ply Hemp, 1½-lb. Balls. 8½@9½¢
2, 3, 4 and 5-Ply Jute, ½-lb. Balls 10½@12¢
Mason Line, Linen, ½-lb. Bls. 46¢
No. 26½ Mattress, ¼ and ½-lb. Balls 37¢
Wool, 3 to 6 ply B 7½¢; A 8½¢

Vises—

Solid Box 60%

Parallel—

Athol Machine Co.:
Simpson's Adjustable 40%
Standard 40%
Amateur 25%
Columbian Hdw. Co. 40%
Emmert Universal:
Pattern Makers' No. 1, $15.00; No. 2, $12.50.
Machinist and Tool Makers' No. 4A, $12.50; No. 5A, $7.00; No. 6A, $10.00; No. 10A, $22.50.
Presto Quick Acting 25@25&5%
Tiger Machinists' 40%
Fisher & Norris Double Screw 15&10%
Hollands':
Machinists' 40@40&5%
Keystone 65&5@70%
Lewis Tool Co.:
Adjustable Jaw 30%
Monarch, 50%; Solid Jaw 50%
Massey Vise Co.:
Clincher 40%
Perfect, 20%; Lightning Grip 20%
Merrill's 20%
Millers Falls 60&10%
Parker's:
Victor, 20@25%; Regulars 20@25%
Vulcan's 40@45%
Combination Pipe 55@60%
Prentiss 20@25%
Snediker's X. L. 33⅓%
Stephens' 33⅓%

Saw Filers—

Disston's D 3 Clamp and Guide, ℔ doz., $24.00, 30%; Clamps 30%
Perfection Saw Clamps, ℔ doz. $4.50
Reading 60%
Wentworth's Rubber Jaw, Nos. 1, 2 and 3 45&50%

Wood Workers—

Massey Vise Co.:
Lightning Grip, 15%; Perfect 15%
Wyman & Gordon's Quick Action, 6 in., $6.00; 9 in., $7.00; 14 in., $8.00.

Miscellaneous—

Bignall & Keeler Combination Pipe Vise 60&10%
Holland's Combination Pipe 60@60&5%
Massey's Quick Action Pipe 40%
Parker's Combination Pipe:
87 Series, 60%; 187 Series, 60&5%; No. 870, 40%.

Wads—*Price per M.*

B. E., 11 up 60¢
B. E., 9 and 10 70¢
B. E., 8 80¢
B. E., 7 80¢
P. E., 11 up $1.00
P. E., 9 and 10 1.25
P. E., 8 1.50
P. E., 7 1.50
Ely's B. E., 11 and larger $1.70@1.75
Ely's P. E., 12 to 20 $3.00@3.25

Dis. 15%

Ware, Hollow—

Cast Iron, Hollow—

Stove Hollow Ware:
Enameled 55%
Ground 60%
Plain or Unground 65%
Country Hollow Ware, per 100 lbs. $2.75
White Enameled Ware:
Maslin Kettles 70%
Covered Wares
Tinned and Turned 40%
Enameled 50%
See also *Pots, Glue.*

Enameled—

Agate Nickel Steel Ware 60%
Iron Clad Ware 70&10%
Lava, Enameled 40&10%
Never Break Enameled 50%

Tea Kettles—

Galvanized Tea Kettles:
Inch 6 7 8 9
Each 45¢ 50¢ 55¢ 65¢

Steel Hollow Ware—

Avery Spiders and Griddles 65@65&5%
Avery Kettles 60%
Porcelained 50&5@50&10%
Never Break Spiders and Griddles 65&5%
Never Break Kettles 60%
Solid Steel Spiders and Griddles 65&5%
Solid Steel Kettles 60%

Warmers, Foot—

Pike Mfg. Co., Soapstone 40@40&10%

Washboards—

Solid Zinc: ℔ doz.
Crescent, family size, bent frame $3.25
Red Star, family size, stationary protector $3.25
Double Zinc Surface:
Saginaw Globe, family size, stationary protector $2.90
Cable Cross, family size, stationary protector $3.15
Single Zinc Surface:
Naiad, family size, open back, perforated $2.65
Saginaw Globe, protector, family size, ventilated back $2.50
Brass Surface:
Brass King, Single Surface, open back $3.25
Nickel Plate Surface:
No. 1001 Nickel Plate, Single Surface $3.25
Glass Surface:
Glass King, Single Surface, open back $3.25
Enamel Surface:
Enamel King, Single Surface, ventilated back $3.25

Washers—Leather, Axle—

Solid 80&10@80&10&10%
Patent 90@90&5%
Coil: ⅞ 1 1⅛ 1¼ Inch. 10¢ 11¢ 12¢ 13¢ per box

Iron or Steel—

Size bolt 5-16 ⅜ ½ ⅝ ¾
Washers $5.10 4.50 3.20 3.00 2.80
The above prices are based on $6.00 off list.

In lots less than one keg add ½¢ per lb.; 5-lb. boxes add ½¢ to list.

Cast Washers—

Over ½ inch, barrel lots per lb. 1¾@2¢

Weather Strip—

Flexible Felt—

Lined, per 100 ft., $2; $3; $4. 40&10%
Moore's Unlined, per 100 ft., $2; $3; $4 50&10%

Wedges—

Oil Finish lb. 2.70@2.80¢

Weights—Hitching—

Covert Mfg. Co. 40%

Sash—

Per ton, f.o.b. factory:
Eastern District $27.50@$28.00
Southern Territory $20.00@$23.00
Western and Central Districts $23.00@$25.00

Wheels, Well—

8-in., $1.55; 10-in., $2.00; 12-in., $2.50; 14-in., $4.00.

Wire and Wire Goods—

Bright and Annealed:
6 to 9 80%
10 to 18 80&2½%
19 to 26 80&7½%
27 to 36 80&2½%
Galvanized:
6 to 9 75&5%
10 to 14 75&7½%
15 to 16 72½&10&2½%
19 to 26 75%
27 to 36 72½%
Coppered:
6 to 9 75&5%
10 to 14 75&7½%
15 to 18 72½&10&2½%
19 to 26 75&10&5%
27 to 36 75%
Tinned:
6 to 14 75&10&2½%
15 to 18 75&7½%
Annealed, Steel and Tinned, on Spools 70&10&10@70&10&10&10%
Brass and Copper on Spools 60&5@60&10&5%
Brass 7½%
Cooper 10%
Cast Steel Wire 50%
Wire Clothes Line, see Lines.
Wire Picture Cord, see Cord.

Bright Wire Goods—

List June 24 '03 90&20@90&25%
Brass Cup Hooks and Brass Screw Hooks 85@—%

Wire Cloth and Netting—

Galvanized Wire Netting 80&5@80&10%
Painted Screen Cloth, 100 ft., $1.00@1.10
Standard Galv. Hardware Grade:
Nos. 2, 2½ & 3 Mesh, sq. ft. 3¢
Nos. 4 and 5 Mesh, sq. ft. 3½¢
No. 6 Mesh, sq. ft. 3½¢
No. 8 Mesh, sq. ft. 4¢

Wire, Barb—See *Trade Report*

Wrenches—

Agricultural 80@80&5%
Alligator or Crocodile 70&10@75%
Baxter Pattern S Wrenches 70&5@70&10%
Drop Forged S 45@45&5%
Acme 60&10%
Alligator Pattern, 70%; Bull Dog 70%
Bemis & Call's:
Adjustable S, 40%; Adjustable S Pipe, 40%; Briggs Pattern, 40%; Combination Bright, 40%.
Bemis Pipe 60%
Combination Black 40&5%
Merrick Pattern 50%
Boardman's 40%
Coes' Genuine Knife Hdl. 40&10&5&5%
Coes' Genuine Steel Hdl. 40&10&5&5%
Coes' Genuine Key Model 40&10&5&5%
Coes', Genuine Hammer Handle 40&10&5&5%
Coes' "Mechanics'" 40&10&10&5&5%
Donohue's Engineer 40&10%
Eagle 50&10%
Elgin Wrenches, ℔ doz. $6.25
Elgin Rethreading Attachment, one die, ℔ doz. $6.25
Elgin Extra Dies, ℔ doz. $3.00
Elgin Extra Jaws, ℔ doz. $1.75
Elgin Monkey Wrench Pipe Jaws, ℔ doz. $2.10
Gem Pocket 30%
Hercules 70%
W. & B. Machinist:
Case lots 50&5%
Less than case lots 50%
W. & B. Railroad Special:
Case lots 50%
Less than case lots 40&10&5%
Solid Handles, P., S. & W. 50&5%
Stillson 65%
Vulcan Chain 50%

Fruit Jar—

Triumph Fruit Jar Wrench, 5 gross lots, ℔ gross, $7.50; ℔ doz. $0.80

Wringers—

Tuttle Roller Press Mop Pail Wringer, each, $8.00; ℔ doz. $48.00

Wrought Goods—

Staples, Hooks, &c., list March 17, '92 90@90&10%

Yokes, Ox, and Ox Bows—

Fort Madison's Farmers' & Freighters' list net

Zinc—

Sheet per 100 lbs., $8.15@8.40

CURRENT METAL PRICES.

The following quotations are for small lots. Wholesale prices, at which large lots only can be bought, are given elsewhere in our weekly market report.

IRON AND STEEL—

Bar Iron from store—

Refined Iron:
1 to 1⅝ in. round and square } ₩ ℔ 2.10¢
1½ to 4 in. x ⅝ to 1 in. }
1½ to 4 in. x ¼ to 5-16 ₩ ℔ 2.30¢
Rods—⅜ and 11-16 round and square ₩ ℔ 2.30¢
Angles: Cts ₩ ℔
3 in. x ¼ in. and larger 2.40¢
(except 3½ in. and 4 x ¼ 2.50¢)
3 in. x 3 16 in. and ⅛ in. 2.55¢
1½ to 2½ in. x ⅛ in. 2.35¢
1½ to 2¾ in. x 3-16 in. and thicker 2.30¢
1 to 1¾ in. x 3-16 in. 2.35¢
1 to 1¾ x ⅛ in. 2.40¢
⅞ x ⅛ in. 2.55¢
¾ x ⅛ in. 2.65¢
⅝ x ⅛ in. 3.70¢
⅜ x 3-32 in. 4 20¢
Tees:
1 in. 2.65¢
1¼ in. 2.45¢
1½ to 2½ in. 2.35¢
3 in. and larger 2.50¢
Beams 2.4 °¢
Channels, 3 in. and larger 2.40¢
Bands—1½ to 6 x 3-16 to No. 8 2.35¢
"Burden's Best" Iron, base price 3.05¢
Burden's "H. B. & S." Iron, base price 3.00¢
"Ulster" 3.10¢
Norway Bars 3.40¢
Norway Shapes 3.80¢

Merchant Steel from Store—

per ℔

Bessemer Machinery 2.00¢
Toe Calk, Tire and Sleigh Shoe 2.50@3.00¢
Best Cast Steel, base price in small lots 7¢

Sheets from Store—

Black

	One Pass, C.R. Soft Steel.	R. G. Cleaned.
No. 14	₩ ℔ 2.80	2.80¢
Nos. 18 to 21	₩ ℔ 2.95	3.00¢
No. 27	₩ ℔ 3.10	3.40¢
No. 28	₩ ℔ 3.20	3.50¢

Russia, Planished, &c.

Genuine Russia, according to assortment ₩ ℔ 11¾@14¢
Patent Planished ₩ ℔ A, 10¢; B, 9¢, net.

Galvanized.

Nos. 14 to 16 ₩ ℔, 3.15¢
Nos. 22 to 24 ₩ ℔, 3.55¢
No. 27 ₩ ℔, 4.00¢
No. 28 ₩ ℔, 4.25¢
No. 20 and lighter 36 inches wide, 25¢ higher.

Tin Plates—

American Charcoal Plates (per box.)

A.A.A. Charcoal:
IC, 14 x 20 $6.45
IX, 14 x 20 7.70
A. Charcoal:
IC, 14 x 20 $5.50
IX, 14 x 20 6.70

American Coke Plates—Bessemer—

IC, 14 x 20 .....108 ℔ $4.50
IX, 14 x 20 6.50

American Terne Plates—

IC, 20 x 28 with an 8 lb. coating $8 70
IX, 20 x 28 with an 8 lb. coating 10.70

Seamless Brass Tubes—

List December 4, 1905. Base price 23c.

Brass Tubes, Iron Pipe Sizes—

List December 4, 1905. Base price 23c.

Copper Tubes—

List December 4, 1905. Base price 27c.

Brazed Brass and Bronze Tubes—

List June 6, 1898. Discount 22½%.

High Brass Rods—

Discount 15%.

Roll and Sheet Brass—

List June 6, 1898. Discount 10%.

METALS—

Tin—

Straits Pig ₩ ℔ 41¼@42 ¢

Copper—

Lake Ingot ₩ ℔ @20¼¢
Electrolytic ₩ ℔ @20 ¢
Casting ₩ ℔ 18½@18¾¢
Sheet Copper Hot Rolled, 16 oz. ₩ ℔ 23¢
" " " 14 " " " 24¢
Sheet Copper Cold Rolled, 1¢ ₩ ℔ advance over Hot Rolled.
Sheet Copper Polished 20 in. wide and under, 1¢ advance over Cold Rolled.
Sheet Copper Polished over 20 in. wide, 2¢ advance over Cold Rolled.
Bottoms, Pits and Flats ₩ ℔ 27¢ basis
Planished Copper, 1¢ ₩ ℔ more than Polished.

Spelter—

Western ₩ ℔ 6¾ @ 7 ¢

Zinc.

No. 9, base, casks, ₩ ℔ 8¼¢ | Open ₩ ℔ 8¾¢

Lead.

American Pig ₩ ℔ 6½@6¾¢
Bar ₩ ℔ 7 @7¼¢

Solder.

½ & ½, guaranteed ₩ ℔ 25½@26 ¢
No. 1 ₩ ℔ 23½@24 ¢
Refined 19¼@20¼
Prices of Solder indicated by private brand vary according to composition.

Antimony—

Cookson ₩ ℔ 27@28¢
Hallett's 26@27¢
Other Brands 24@25¢

Aluminum—

No. 1 Aluminum (guaranteed over 99% pure), in ingot for remelting:
Small lots 40c
100-℔ lots 38c

Old Metals.

Dealers' Purchasing Prices Paid in New York.

	Cents
Copper, Heavy Cut and Crucible	₩ ℔ 17.50@17.75¢
Copper, Heavy and Wire	₩ ℔ 17.00@17.50¢
Copper, Light and Bottoms	₩ ℔ 15.50@15.75¢
Brass, Heavy	₩ ℔ 11.75@12.25¢
Brass, Light	₩ ℔ 9.25@ 9.75¢
Heavy Machine Composition	₩ ℔ 15.75@16.25c
Clean Brass Turnings	₩ ℔ 10.50@11.00c
Composition Turnings	₩ ℔ 13.25@13.75c
Lead, Heavy	₩ ℔ 5.10@ 5.25¢
Tea Lead	₩ ℔ 4.90@ 5.10¢
Zinc Scrap	₩ ℔ ....@ 4.25¢

No. 1 Yard Wrought, Long	$ 6.50@17.00
No. 1 Yard Wrought, Short	$15.75@16.50
Wrought Pipe	$12.00@12.75
No. 1 Machinery Cast	$15.50@16.00
Stove Plate	$11.00@11.50

THE IRON AGE

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